JVC

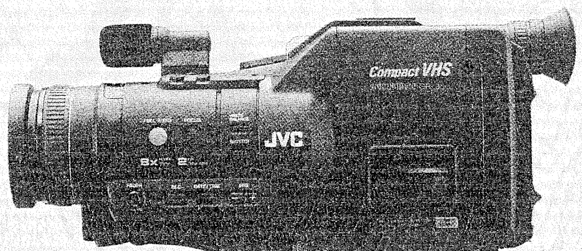
SERVICE MANUAL

VHS VIDEO MOVIE

GR-303U

CCD
Charge Coupled Device

FULL RANGE AF



videomovie

VHS-C

HQ High Quality

SPECIFICATIONS *(The specifications shown pertain specifically to the model GR-303U for CANADA)*

Format : VHS NTSC standard
Power source : DC 9.6 V ⎓
Power consumption : 8.5 W (Avg.) MAX 1.2A
Signal system : NTSC-type
Video recording system : Luminance: FM recording
Color: Converted sub-carrier direct recording
Conforms to VHS standard
Cassette : VHS-C cassette
Tape speed (SP) : 33.35 mm/sec (1-5/16 ips)
(EP) : 11.12 mm/sec (7/16 ips)
Recording time
Max. (SP) : 30 minutes (with TC-30 cassette)
(EP) : 90 minutes (with TC-30 cassette)

VIDEO
Output : 1 Vp-p, 75 ohms, unbalanced (via AV OUT connector)
S/N ratio : More than 42 dB (with Rohde & Schwarz noise meter)

AUDIO
Output : –6 dBs, 1 k-ohm (via AV OUT connector).
Microphone input : –68 dBs, high impedance, unbalanced
Pick up : 1/2"-format CCD
Minimum required illumination : 2 lux (0.2 fc) (at F/1.4)
Illumination range : 2 to 100,000 lux (0.2 to 9,300 fc)
Lens : F/1.4, f = 8 to 64 mm, 8:1 power zoom lens with auto iris and macro control, filter diameter 52 mm
Viewfinder : Electronic viewfinder with 0.6" black/white CRT
Selectable high-speed shutter : Switchable (1/60, 1/100, 1/125, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000 second)
White balance adjustment : Full-auto/preset standard
Color temperature : Switchable (3,200K/4,500K/5,500K)
Operating temperature : 0°C to +40°C (32°F to 104°F)
Operating humidity : 35 % to 80%
Storage temperature : –20°C to +50°C (–4°F to 122°F)
Weight : 1.1 kg (2.5 lbs) (with viewfinder)
Dimensions : 106(W) x 130(H) x 288(D) mm
(4-3/16" x 5-1/8" x 11-3/8") (incl. viewfinder)

AA-V6U SPECIFICATIONS

Power requirement : U.S. and Canada: AC 120 V∿, 60 Hz
Other countries: AC 110 to 240 V∿, 50/60 Hz
Power consumption : 23 W
Output : DC 14 V ⎓, 1.1 A (Charge)
DC 9.6 V ⎓, 1.2 A (VideoMovie)
Charging system : Constant current, peak detection, timer controlled
Dimensions : 150(W) x 42(H) x 69(D) mm
(5-15/16" x 1-11/16" x 2-3/4")
Weight : Approx. 360 g (0.8 lbs)

C-P6U SPECIFICATIONS

Type : VHS cassette adapter
Dimensions : 188(W) x 25(H) x 104(D) mm
(7-7/16" x 1" x 4-1/8")
Weight : 240 g (0.53 lbs)
Accessory : "AA"-size battery x 1

PROVIDED ACCESSORIES

AC power adapter/battery charger	AA-V6U
Battery pack	BN-V6GU
A/V output cable	VC-V826U
Cassette adapter	C-P6U
Battery for clock operation	CR2025
Shoulder strap	
Title Easel	

Specifications shown are for SP mode unless otherwise specified.
Design and specifications subject to change without notice.

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No. 86148
February 1991

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Important Safety Precautions

Prior to shipment from the factory, JVC products are strictly inspected to conform with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

● Precautions during Servicing

1. Locations requiring special caution are denoted by labels and inscriptions on the cabinet, chassis and certain parts of the product. When performing service, be sure to read and comply with these and other cautionary notices appearing in the operation and service manuals.

2. Parts identified by the ⚠ symbol and shaded (▨) parts are critical for safety.
   Replace only with specified part numbers.
   Note: **Parts in this category also include those specified to comply with X-ray emission standards for products using cathode ray tubes and those specified for compliance with various regulations regarding spurious radiation emission.**

3. Fuse replacement caution notice.
   Caution for continued protection against fire hazard.
   Replace only with same type and rated fuse(s) as specified.

4. Use specified internal wiring. Note especially:
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads

5. Use specified insulating materials for hazardous live parts. Note especially:
   1) Insulation Tape
   2) PVC tubing
   3) Spacers
   4) Insulation sheets for transistors
   5) Barrier

6. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.) wrap ends of wires securely about the terminals before soldering.

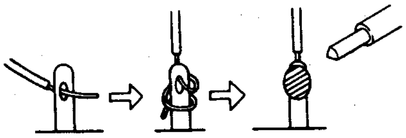


Fig. 1

7. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.)

8. Check that replaced wires do not contact sharp edged or pointed parts.

9. When a power cord has been replaced, check that 10–15 kg of force in any direction will not loosen it.

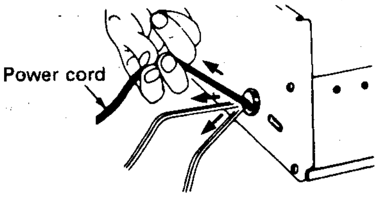


Fig. 2

10. Also check areas surrounding repaired locations.

11. Products using cathode ray tubes (CRTs)
    In regard to such products, the cathode ray tubes themselves, the high voltage circuits, and related circuits are specified for compliance with recognized codes pertaining to X-ray emission. Consequently, when servicing these products, replace the cathode ray tubes and other parts with only the specified parts. Under no circumstances attempt to modify these circuits. Unauthorized modification can increase the high voltage value and cause X-ray emission from the cathode ray tube.

12. Crimp type wire connector
    In such cases as when replacing the power transformer in sets where the connections between the power cord and power transformer primary lead wires are performed using crimp type connectors, if replacing the connectors is unavoidable, in order to prevent safety hazards, perform carefully and precisely according to the following steps.
    1) **Connector part number** : E03830-001
    2) **Required tool** : Connector crimping tool of the proper type which will not damage insulated parts.
    3) **Replacement procedure**
       (1) Remove the old connector by cutting the wires at a point close to the connector.
       Important : Do not reuse a connector (discard it).

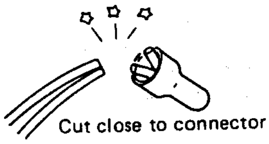


Fig. 3

(2) Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.

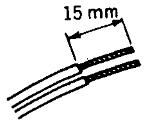


Fig. 4

(3) Align the lengths of the wires to be connected. Insert the wires fully into the connector.

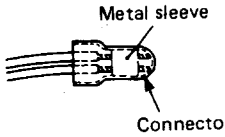


Fig. 5

(4) As shown in Fig. 6, use the crimping tool to crimp the metal sleeve at the center position. Be sure to crimp fully to the complete closure of the tool.

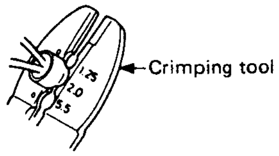


Fig. 6

(5) Check the four points noted in Fig. 7.

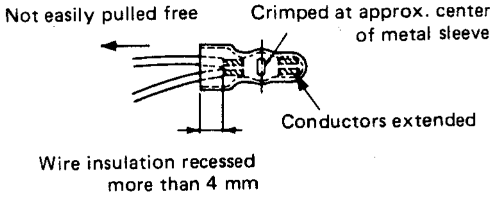

Not easily pulled free
Crimped at approx. center of metal sleeve
Conductors extended
Wire insulation recessed more than 4 mm

Fig. 7

● Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions, Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

1. **Insulation resistance test**
Confirm the specified insulation resistance or greater between power cord plug prongs and externally exposed parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

2. **Dielectric strength test**
Confirm specified dielectric strength or greater between power cord plug prongs and exposed accessible parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

3. **Clearance distance**
When replacing primary circuit components, confirm specified clearance distance (d), (d') between soldered terminals, and between terminals and surrounding metallic parts. See table 1 below.

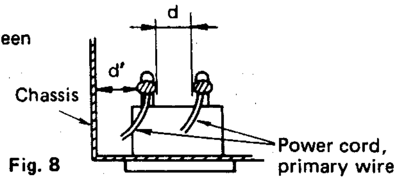


Fig. 8

4. **Leakage current test**
Confirm specified or lower leakage current between earth ground/power cord plug prongs and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.).
Measuring Method: (Power ON)
Insert load Z between earth ground/power cord plug prongs and externally exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See figure 9 and following table 2.

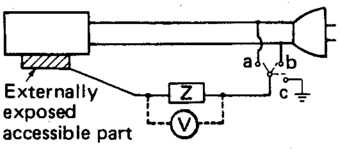


Fig. 9

5. **Grounding (Class I model only)**
Confirm specified or lower grounding impedance between earth pin in AC inlet and externally exposed accessible parts (Video in, Video out, Audio in, Audio out or Fixing screw etc.).
Measuring Method:
Connect milli ohm meter between earth pin in AC inlet and exposed accessible parts. See figure 10 and grounding specifications.

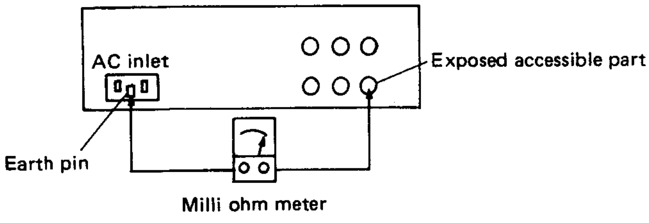


Fig. 10

Grounding Specifications

Region	Grounding Impedance (Z)
USA & Canada	Z ≦ 0.1 ohm
Europe & Australia	Z ≦ 0.5 ohm

AC Line Voltage	Region	Insulation Resistance (R)	Dielectric Strength	Clearance Distance (d), (d')
100 V	Japan	R ≧ 1 MΩ/500 V DC	AC 1 kV 1 minute	d, d' ≧ 3 mm
100 to 240 V			AC 1.5 kV 1 minute	d, d' ≧ 4 mm
110 to 130 V	USA & Canada	–	AC 900 V 1 minute	d, d' ≧ 3.2 mm
110 to 130 V 200 to 240 V	Europe & Australia	R ≧ 10 MΩ /500 V DC	AC 3 kV 1 minute (Class II) AC 1.5 kV 1 minute (Class I)	d ≧ 4 mm d' ≧ 8 mm (Power cord) d' ≧ 6 mm (Primary wire)

Table 1 Specifications for each region

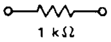
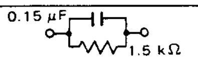
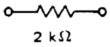
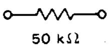
AC Line Voltage	Region	Load Z	Leakage Current (i)	a, b, c
100 V	Japan	 1 kΩ	i ≦ 1 mA rms	Exposed accessible parts
110 to 130 V	USA & Canada	 0.15 µF 1.5 kΩ	i ≦ 0.5 mA rms	Exposed accessible parts
110 to 130 V 220 to 240 V	Europe & Australia	 2 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Antenna earth terminals
		 50 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Other terminals

Table 2 Leakage current specifications for each region

Note: These tables are unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

JVC

INSTRUCTIONS

GR-303

CAMERA-RECORDER/PLAYER

CAMERA-ENREGISTREUR/LECTEUR

Specifically for the GR-303U/AA-V6U

Spécial pour le GR-303U/AA-V6U

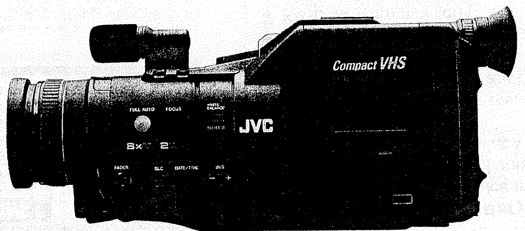
videomovie

VHS C

HQ High Quality

CCD Charge Coupled Device

AF FULL RANGE AF



Thank you for purchasing the JVC GR-303U Compact VHS VideoMovie. Learn about all the available features and take advantage of them for your total moviemaking enjoyment.

Before using this VideoMovie, read this instruction booklet carefully so that you will obtain the best results from your GR-303U.

ENGLISH INSTRUCTIONS .... **Page 1 – 38**

Nous vous remercions pour l'achat du VideoMovie VHS compact GR-303U JVC. Pour votre plaisir total, étudiez toutes les caractéristiques disponibles et profitez-en.

Avant d'utiliser ce VideoMovie, lire avec soin ce manuel d'instructions pour obtenir les meilleurs résultats possibles de votre nouvel appareil.

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YU30052-186

SAFETY PRECAUTIONS

CAUTION

RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

The AA-V6U AC Power Adapter/Battery Charger should be used with:
AC 120 V∿, 60 Hz in the USA and Canada,
AC 110–240 V∿, 50/60 Hz in other countries.

CAUTION (applies to the AA-V6U)
TO PREVENT ELECTRIC SHOCK, MATCH WIDE BLADE OF PLUG TO WIDE SLOT, FULLY INSERT.

ATTENTION
This product complies with D.O.C. Limits (C.R.C., C. 1374) pertaining to Class B digital apparatus.

VHS C

Cassettes marked VHS C can be used with this VideoMovie.

Warning on lithium battery
The battery used in this device may present a fire or chemical burn hazard if mistreated. Do not recharge, disassemble, heat above 100°C (212°F) or incinerate.
Replace battery with Panasonic (Matsushita Electric) CR2025; use of another battery may present a risk of fire or explosion.

- Dispose of used battery promptly.
- Keep away from children.
- Do not disassemble and do not dispose of in fire.

WARNING:
TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.

NOTES:

- The rating plate (serial number plate) and safety caution are on the bottom of the main unit.
- The rating plate (serial number plate) of the viewfinder is on its bottom.
- The rating plate (serial number plate) of the AC power adapter/battery charger is on its bottom.

You are recommended to carefully read the cautions on pages 35 and 36 before use.

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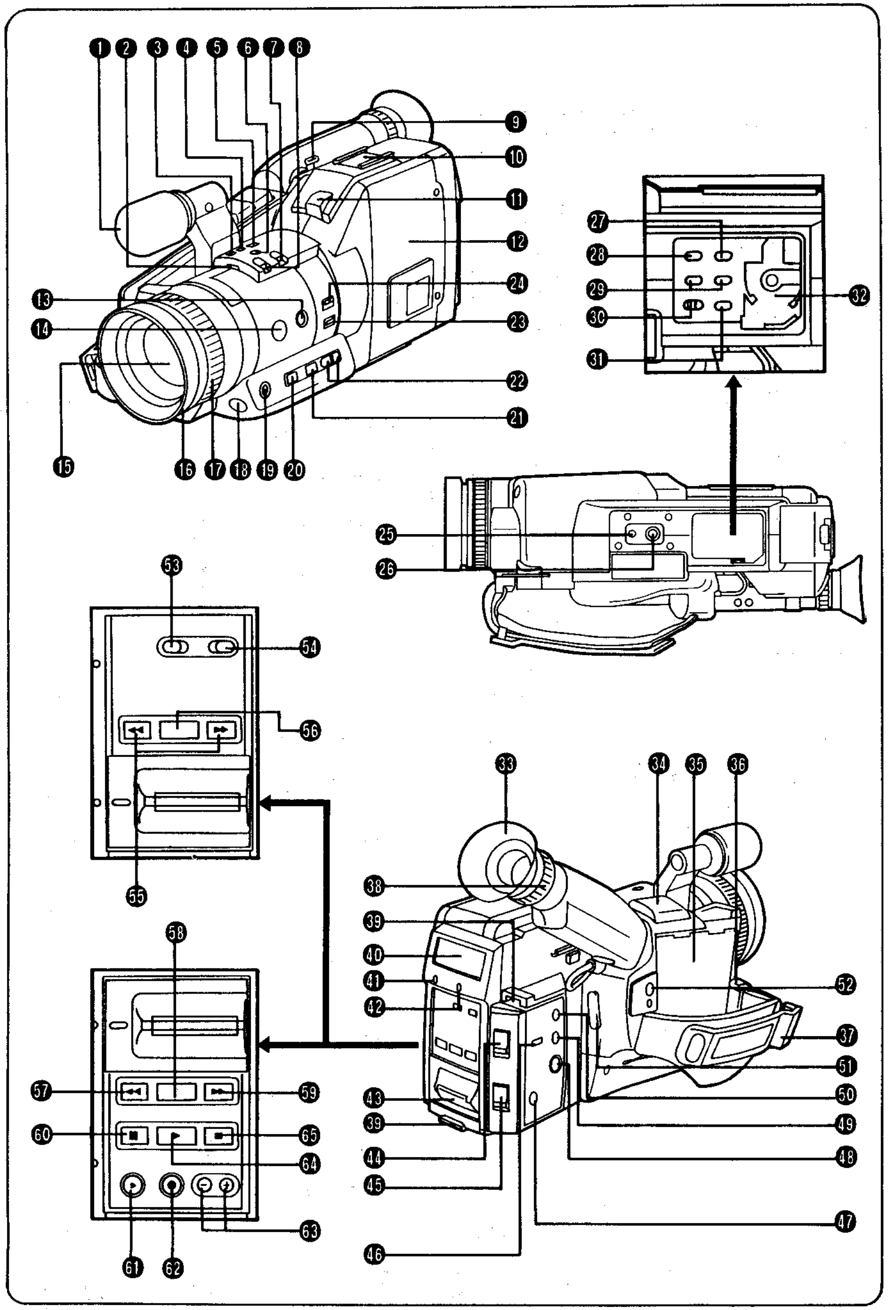
MAJOR FEATURES

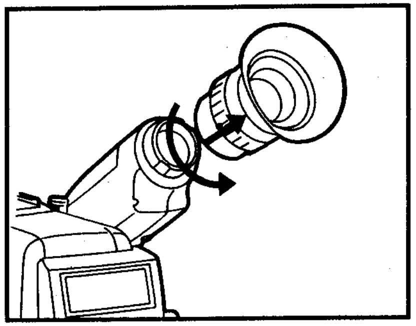
- **Newly-developed 1/2" high-resolution CCD**
- **Flying erase head**
- **2-Lux low-light sensitivity**
- **Variable-speed electronic shutter: 1/10000, 1/4000, 1/2000, 1/1000, 1/500, 1/250, 1/125, 1/100, and 1/60-sec.**
- **Digital Tracking**
- **Precision Full Range AF system with Auto Macro shooting and Electro-Manual Power Focus**
- **Manual override of iris (±15-step EF compensation) and white balance (3-position preset)**
- **4-Page Digital Superimpose (8 colors, nega/posi) with 8-color scene/title fading**
- **Variable time-lapse, animation, and self-timer functions (with optional remote)**

The GR-303U is designed to be used with NTSC-type color television signals. It cannot be used for playback with a television of a different standard. However, live recording and viewfinder playback are possible anywhere. Use the BN-V5GU/BN-V6GU/BN-V7GU battery packs and, to recharge them, the provided multi-voltage AC power adapter/battery charger. (An appropriate conversion adapter may be necessary to accommodate different designs of AC outlets in different countries.)

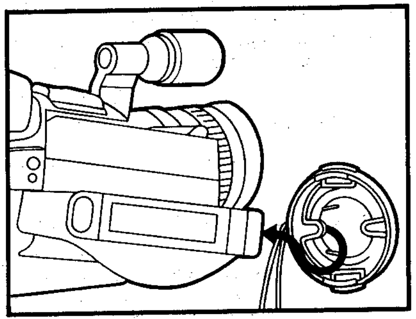


CONTROLS AND CONNECTORS

No.		
①	Microphone	
②	Tally lamp	10
③	COLOR button	17
④	REVERSE button	17
⑤	TITLE MEMORY button	17
⑥	TITLE PAGE button	17
⑦	TITLE FADER button	19
⑧	TITLE ON/OFF button	17
⑨	Viewfinder slide knob	7
⑩	Accessory shoe	29
⑪	White balance sensor window	34
⑫	Cassette holder	7
⑬	FOCUS button	13
⑭	FULL AUTO button	13
⑮	8:1 zoom lens	
⑯	Lens hood	
⑰	Manual focus ring	13
⑱	Second Recording Start/Stop button (SUB-TRIGGER)	10
⑲	FADER reservation button	19
⑳	BLC button	16
㉑	DATE/TIME button	11
㉒	IRIS +/– buttons	15
㉓	SHUTTER button	16
㉔	WHITE BALANCE button	16
㉕	Stud hole	29
㉖	Tripod mounting socket	29
㉗	DATE/TIME SELECT button	8
㉘	DATE/TIME MODE button	11
㉙	DATE/TIME SET button	8
㉚	REC TIME ON/OFF switch	10
㉛	REC TIME RESET button	10
㉜	Clock battery compartment	8
㉝	Eyepiece	
㉞	Power zoom buttons	14
㉟	Battery pack mount	5
㊱	Battery pack release lever	5
㊲	Lens cap hook	
㊳	Dioptric adjustment control	7
㊴	Eyelet for attaching the shoulder strap	29
㊵	LCD (Liquid Crystal Display) panel	4
㊶	COUNTER MEMORY button	22
㊷	COUNTER RESET button	22
㊸	Control panel door	9
㊹	POWER switch/indicator	9
㊺	EJECT switch	7
㊻	DUBBING ON/OFF switch	26
㊼	DC IN terminal	6
㊽	A/V OUT connector	24
㊾	REMOTE jack	30
㊿	Earphone (PHONE) jack	
(51)	Recording Start/Stop button	9
(52)	External MIC jack	29
(53)	Recording mode select switch	9
(54)	ALARM ON/OFF switch	10
(55)	RETAKE buttons	12
(56)	QUICK REVIEW button	10
(57)	REW/SHUTTLE SEARCH button	21
(58)	EDIT button	26
(59)	FF/SHUTTLE SEARCH button	21
(60)	PAUSE/MONITOR button	9
(61)	INSERT button	28
(62)	AUDIO DUB button	28
(63)	TRACKING (+/–) button	22
(64)	PLAY button	21
(65)	STOP button	9



Cleaning the eyepiece
The viewfinder eyepiece can be removed for cleaning. Turn the eyepiece counterclockwise and pull it out.



This keeps the lens cap from swinging during shooting.

VIEWFINDER AND LCD INDICATIONS

Recording

Viewfinder	LCD	Mode/Status
"–" or "EP–"	●II	Record-Standby
"REC" or "EP REC"	●	Recording
S1000		Shutter speed
FADER		Fader
AF/OFF		Manual Focus
JAN.1.91 AM 11:59		Date/time
✹ ▭ ✹		White balance
▧		Backlight compensation
+15		Iris control
⊡ BLACK		Title page/color
	▶▶ or ▶◀◀ Blinking	Retake
	⊳	Insert editing
	⊖	Audio dubbing
0:00:00		Rec time counter
	0M	Counter memory

Playback

Viewfinder	LCD	Mode/Status
	■	Stop
	▶	Playback
	II	Pause
	◀◀	Rewind
	▶▶	Fast-forward
	▶◀◀	Reverse Shuttle Search
	▶▶▶	Forward Shuttle Search

Warnings

Viewfinder	LCD	Mode/Status
▬ BATT. Blinking	▭ Blinking	Battery warning
▬ CLOCK Blinking		Clock battery warning
CASSETTE Blinking		Cassette warning
💧 DEW Blinking	💧 Blinking	Condensation warning
LIGHT Blinking		Low-light warning
REC Blinking	● Blinking	Record. Tape-end warning

On-Screen Display
The viewfinder indications can also be displayed on the screen of a monitor connected to the GR-303U. See page 11.

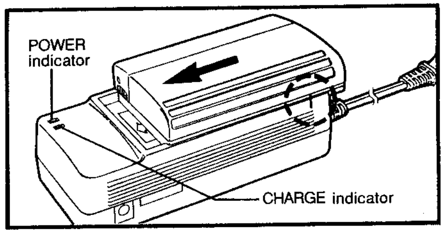
POWER SUPPLY SYSTEM

The convenient 3-way power supply system gives you a choice of the most appropriate power supply unit, depending on the application.

WITH BATTERY PACK

The battery pack has been kept in the uncharged state for shipment. Therefore, before use, be sure to charge it.

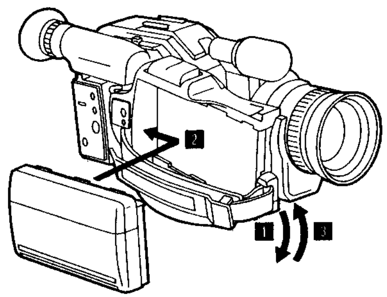
Charging procedure



Charging time

BN-V5GU: 50 min.	BN-V7GU: 80 min.
BN-V6GU: 70 min.	

Attaching the battery pack



PRECAUTIONS

- If used near a radio, the provided AA-V6U AC power adapter/battery charger may interfere with reception.
- Prevent inflammables, water and metallic objects from entering the unit.
- Do not disassemble or modify the unit.
- Do not apply shocks to the unit.
- Do not subject the unit to direct sunlight.
- Avoid using the unit in extremely hot or humid places.
- Avoid using the unit in places subject to vibrations.

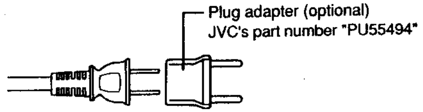
AC power adapter/battery charger AA-V6U

1. Connect the AC power cord to a wall outlet. (The POWER indicator will light)
2. Align the marks on the battery pack and adapter.
3. Slide the battery pack in the direction of the arrow until it locks in place.
4. When charging is completed, the CHARGE indicator that is red turns green.

- The charging time differs depending on the ambient temperature and the condition of the battery pack.

When using the AA-V6U in areas other than the USA and Canada

USING HOUSEHOLD AC PLUG ADAPTER
In case of connecting the unit's power cord to an AC wall outlet other than American National Standard C73 series type use an AC plug adapter, called a "Siemens Plug", as shown below.
For this AC plug adapter, consult your nearest JVC dealer.



1. Pull down the battery pack release lever.
2. Align the battery pack over the outline in the battery pack mount, and slide the battery pack into place in the direction of the arrow.
3. Push up on the battery pack release lever, unit it locks into place.

- To remove the battery pack, pull down the battery pack release lever and slide out the battery.

Recording time for the GR-303U

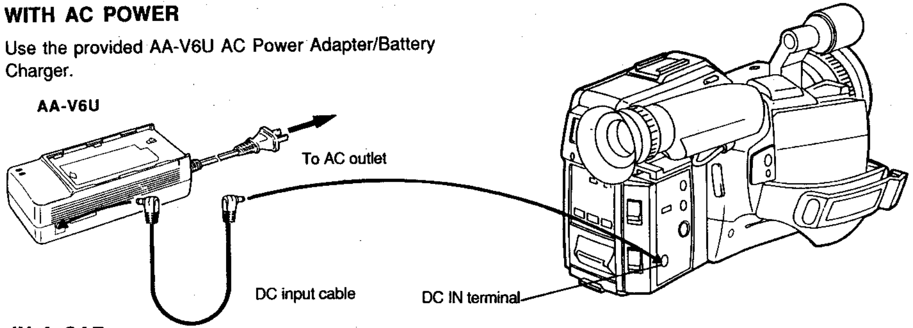
BN-V5GU: 25 min.	BN-V7GU: 75 min.
BN-V6GU: 55 min.	

- The recording time per charge is influenced by the duration of recording standby, frequency of zooming, etc. It is safer to have spare battery packs.

CAUTIONS
- No function is available without power supply.
- Do not use any power supply other than specified.
- Never attempt to use these power supply units with any equipment other than the VideoMovie.

WITH AC POWER

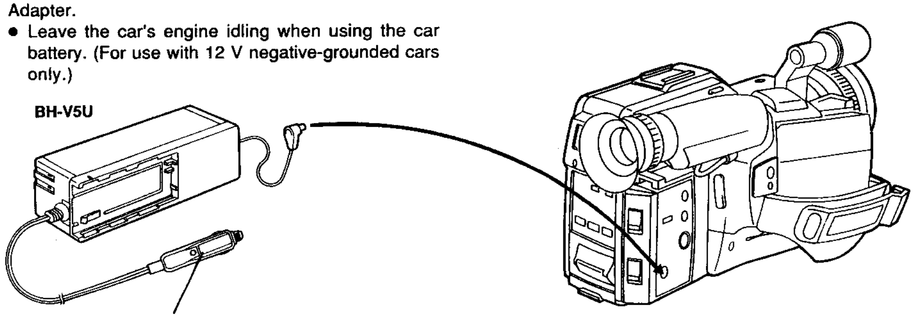
Use the provided AA-V6U AC Power Adapter/Battery Charger.



IN A CAR

Use the optional BH-V5U Car Battery Charger/Adapter.

- Leave the car's engine idling when using the car battery. (For use with 12 V negative-grounded cars only.)

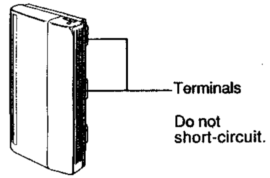


Cigarette lighter plug

Note:
The optional BH-V5U Car Battery Charger/Adapter can charge the batteries from a car battery. For details refer to the instructions of the BH-V5U.

A WORD ON THE EXCLUSIVE BN-V5GU/V6GU/V7GU BATTERY PACKS

The BN-V5GU/V6GU/V7GU are nickel-cadmium batteries. Be sure to carefully read the caution attached to the battery pack.

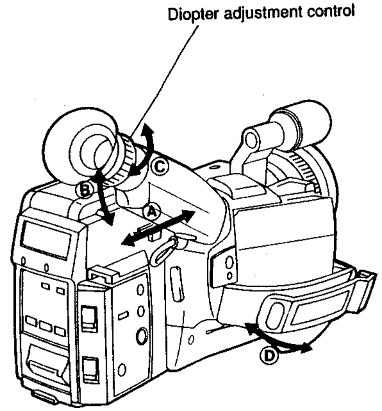


Temperature ranges:

The recharging time is based on room temperature of 20°C. The lower the temperature, the longer the recharging time.

For charging:	10°C to 35°C	(50°F to 95°F)
For operating:	0°C to 40°C	(32°F to 104°F)
For storing:	–10°C to 30°C	(14°F to 86°F)

BASIC PREPARATIONS



POSITIONING THE VIEWFINDER

The viewfinder can be positioned for best viewability. It can slide forward or back (Ⓐ) while pressing the viewfinder slide knob and can be tilted up 90° (Ⓑ).

DIOPTER ADJUSTMENT

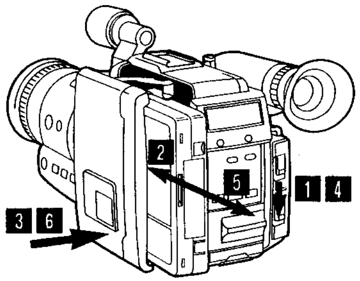
The viewfinder lens can be adjusted to suit the operator's eyesight by turning the diopter adjustment control (Ⓒ).

- Perform this adjustment in the Record-Standby mode.

ADJUSTING THE GRIP STRAP

1. Separate the Velcro strip to expand the loop (Ⓓ).
2. Pass your right hand through the loop and grasp the lens grip. Adjust the length of the strap to suit your hand size and refasten the Velcro strip.

LOADING AND UNLOADING A CASSETTE



LOADING

1. Open the cassette holder by pressing the EJECT button.
2. Insert the cassette with its label facing outward.
3. Close the cassette holder by pushing the specified area as shown.

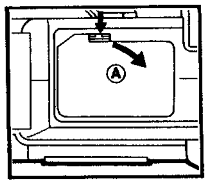
UNLOADING

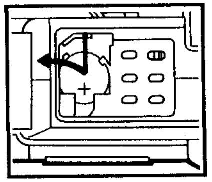
4. Press the EJECT button. The cassette holder will open.
5. Remove the cassette.
6. Close the cassette holder by pushing the specified area as shown.

Notes:

- Ensure that tape is not slack inside the cassette, then load the cassette correctly. See page 36.
- Do not repeat loading and unloading of the cassette without running the tape, as this will slacken the tape, causing tape damage.
- The cassette holder can be opened even when the power is off.

DATE/TIME SETTING





Notes:
- Switch off the unit's power before inserting or removing a battery.
- Replace battery with Panasonic (Matsushita type) CR2025 only. Use of another battery may present risk of fire and explosion.

Warning on lithium battery
- Dispose of used battery promptly
- Keep away from children
- Do not disassemble and do not dispose of in fire.

LITHIUM BATTERY

The provided lithium battery powers the clock operation and date/time insertion and title memory functions.

Battery insertion

This battery powers the date/time function.

1. Open the CLOCK battery compartment cover on the bottom of the VideoMovie (Ⓐ in the figure.)
2. Insert the provided lithium battery with the plus (+) side up.
3. Close the cover on the unit until it clicks.

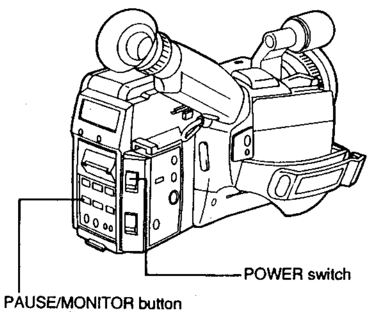
Battery replacement

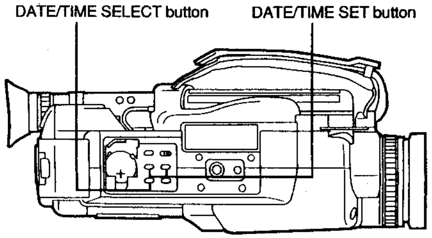
The battery lasts for about one year. When the lithium battery warning (CLOCK) appears in the viewfinder, this battery needs to be replaced. Obtain a new CR2025 lithium battery and perform the following procedure.

1. Remove the battery by pushing it in the direction of the arrow.
2. Insert the new CR2025 with the plus (+) side up.
3. Close the cover back until it clicks.

DATE/TIME SETTING

Before adjusting the date and time for the first time or after replacing the batteries, "JAN.1.00" blinks in the viewfinder, indicating the clock needs to be set.



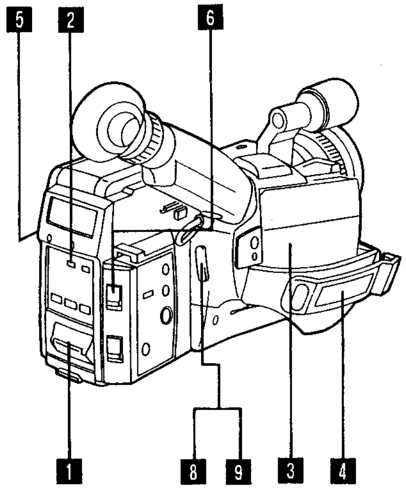


1. Switch the unit's power on and press the PAUSE/MONITOR button, "JAN.1.00 AM 12:00" will blink in the viewfinder.
2. Press the DATE/TIME SELECT button—the year blinks.
3. Press the DATE/TIME SET button to choose the correct number.
4. Press the DATE/TIME SELECT button to select the next item to change, with the item selected changing in the following sequence:

→ Year → Month → Day → Hour → Minute ─┐
└─── Finish Adjustment ←───┘

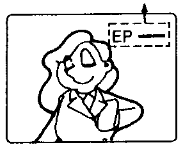
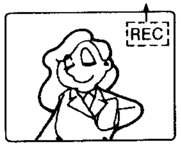
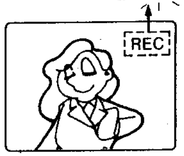
5. Repeat steps 3 and 4 to set all items. After the minute setting has been performed, press the DATE/TIME SELECT button, and items will cease blinking, and the clock will resume normal function. For the auto date record mode, the auto date record reserve indicator will appear.

RECORDING OPERATION



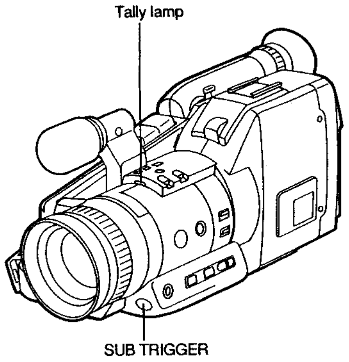
1. Set the control panel cover to REC.
2. Set the SP/EP recording mode select switch as required.
3. Supply power. (Battery pack or AC power adapter or car battery charger. See pages 5 and 6.)
4. Adjusting the grip strap. See page 7.
5. Insert a video cassette correctly. See page 7.
6. Slide the POWER switch to turn power on. The unit enters the Record-Standby mode. (The aimed-at scene will appear on the viewfinder screen.)
7. Determine the composition by referring to the viewfinder image.
8. Press the Recording Start/Stop button. The recording mode indication will appear and the recording starts.
   - During recording, the tally lamp lights continuously.
9. To stop recording temporarily, press the Recording Start/Stop button once again.
   - To restart recording, press the Recording Start/Stop button.

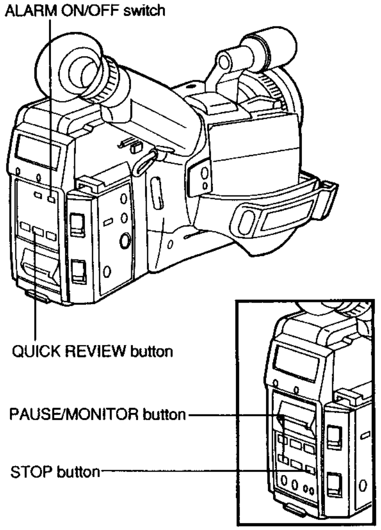
Viewfinder indications

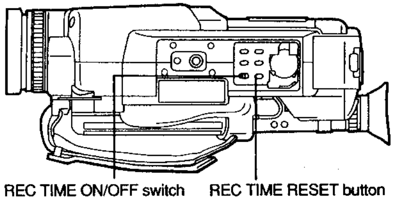
Record-Standby mode	Recording mode	Tape-end warning
"–" or "EP –"	"REC" or "EP REC"	Blinking → "REC" or "EP REC"
		

- The tape-end warning indication will start blinking about 3 minutes before the end of the tape with a 20-min. tape (TC-20). With a 30-min. tape (TC-30), the blinking starts about 5 minutes before the end of the tape in the SP mode, and about 7 minutes in the EP mode.
- If a tape reaches its end during recording, the Stop mode is engaged automatically.

Notes:
- Repeating steps 8 and 9 produces assemble recordings.
- For a longer pause, slide the POWER switch to off to save power.
- If the Record-Standby mode continues for longer than about 5 minutes, the unit switches itself off automatically. To restart recording, turn the power on and press the Recording Start/Stop button. This makes clean assembled recordings possible even after a long pause.
- To end recording, slide the POWER switch to off.







REHEARSAL

If you wish to rehearse shooting angles, compose scenes, etc., without actually recording on the tape, press the PAUSE/MONITOR button.
The aimed-at scene will appear on the viewfinder screen.

- Rehearsal is possible whether a cassette is loaded or not.
- With a cassette loaded, rehearsal is not possible during rewind or fast forward.
- The power save circuit does not function during rehearsal. (For power save function, see page 12.)

SUB TRIGGER

When you shoot scenes from a low angle, use the Second Recording Start/Stop button (SUB TRIGGER) for better viewability and securer positioning of the camera.

TRIGGER ALARM

When the ALARM ON/OFF switch is set to ON, an electronic alarm beeps when the Recording Start/Stop button is pressed to begin recording.
The electronic alarm beeps twice when the Recording Start/Stop button is pressed for record pause. This alarm helps prevent recording errors.

TALLY LAMP

Lights to show that the recording is in progress.

QUICK REVIEW

If you want to review the end of the last recording for confirmation, press the QUICK REVIEW button from the Record-Standby mode; the tape will be rewound for about 2 seconds of program time and played back automatically for this section, after which it will stop in the Record-Standby mode for the next shot.

Note:

- Distortion might occur when playback starts. This is normal.

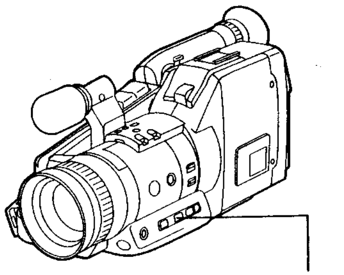
ELAPSED TIME DISPLAY

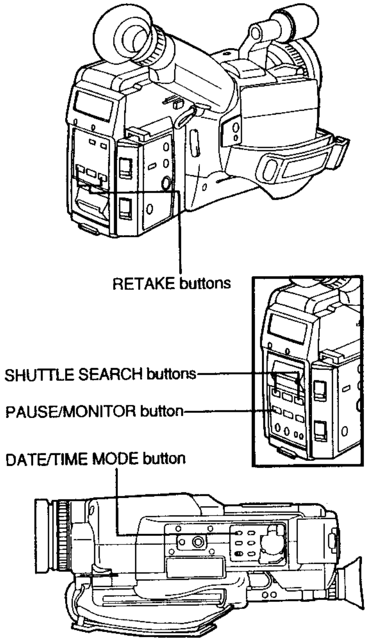
The accumulated recording time (elapsed time) can be displayed on the viewfinder.

1. Set the REC TIME ON/OFF switch to ON. The recording time is displayed on the viewfinder screen.
2. If you wish to reset it to "0:00:00", press the REC TIME RESET button.

Notes:

- When you wish to disengage the Elapsed Time Display mode, set the REC TIME ON/OFF switch to OFF.
- Sliding the control panel cover to "PLAY", or opening the cassette holder also resets the display to "0:00:00".





ON-SCREEN DISPLAY

The viewfinder indications can also be displayed on the screen of a monitor connected to the GR-303U.

- Connect the GR-303U to a video monitor. Press the DATE/TIME MODE button to select the On-Screen Display mode.
- The on-screen display on the connected monitor is available in Rehearsal or Record-Pause mode.

DATE/TIME RECORDING

The date, time, or date and time can be displayed and recorded according to the selected mode. Press the DATE/TIME MODE button to cycle through the modes in the following order:

→ Date/time display → Date display → Time display →
On-screen display ← Auto date record reserve ←

Press the DATE/TIME button when you do not wish to record the date/time. This will remove the date/time indications from the viewfinder. Press again to record the date/time. Date/time will reappear in the viewfinder.

Auto date-record function

This function allows the date (month, day and year) to be automatically recorded for about 5 seconds following the first operation of the Recording Start/Stop button:
= after the control panel cover is set to "REC",
= after a cassette is loaded, or
= after "AUTO DATE" mode is selected by the DATE/TIME MODE button.

- The viewfinder indication shows the date during initial 5 seconds, then changes to "AUTO DATE".

Date/time recording indications

Date/time display	Date display	Time display
DEC.31.91 AM 11:30	DEC. 31. 91	AM11:30

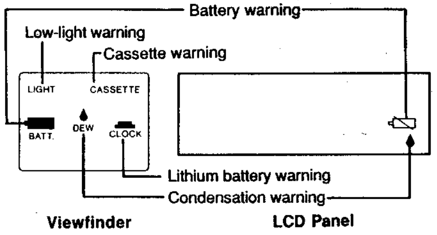
Auto date record	
AUTO DATE	DEC. 31. 91
Auto date record mode	Auto date record executed

RETAKE

After reviewing a recorded segment, you may decide to re-record it immediately. The Retake function is convenient for this.

1. Make sure the VideoMovie is in the Record-Standby mode. (If not, engage the mode.)
2. Press either RETAKE button to reach the point where you wish a new recording to start. When the RETAKE button is released, the camera will enter the Record-Standby mode again.
3. Press the Recording Start/Stop button to start recording.
   - Noise may appear during Retake. This is normal.

WARNINGS



Battery warning

- When the battery power is coming to an end, a battery warning indication appears in both the viewfinder and the LCD. Replace the battery pack with a fully charged one.
- After these indications appear, the power turns off automatically. In this state, however, pressing the EJECT button turns the power on and ejects the cassette.

Low-light warning

- If the blinking "LIGHT" indicator appears on the viewfinder screen, the amount of light is insufficient. Increase the lighting.

Lithium battery warning

- Blinks when the lithium battery is not in place or exhausted. In this condition, no date/time function is available.

Condensation warning

- Appears when the excessive moisture condensation occurs inside the unit.

Cassette warning

- Blinks to warn that no cassette or a cassette without safety tab is inserted.

ASSEMBLE RECORDING TECHNIQUES

1 To replace the battery pack during recording

1. If the battery warning appears in the viewfinder or the LCD while recording, stop recording by setting the POWER switch to OFF.
2. Replace the battery pack with a charged one.
3. Set the POWER switch to ON.
   - The unit will be in the Record-Standby mode.
4. Press the Recording Start/Stop button to start recording.

2 To record onto a partially recorded tape

1. Play back the tape to a point where you wish a new recording to start.
   - Use the SHUTTLE SEARCH button for faster location.
2. Press the PAUSE/MONITOR button at the located point.
   - The unit will enter the Still mode.
3. Slide the control panel cover downward.
4. Press the Recording Start/Stop button to start recording.

POWER SAVE AND TAPE PROTECTION CIRCUIT

- To save power, the VideoMovie switches itself off automatically in the following situations:
  (1) When left for longer than 5 minutes in the Stop mode.
  (2) When left for longer than 5 minutes in the Record-Standby (Record-Pause) mode.
- To protect the tape, the VideoMovie (regardless of whether battery-operated or AC-powered) releases tape tension slightly and switches itself off automatically if left for longer than 5 minutes in the Record-Standby (Record-Pause) mode.
- For the same reason, the VideoMovie switches itself off if left for longer than 5 minutes in the Still (Play-Pause) mode.

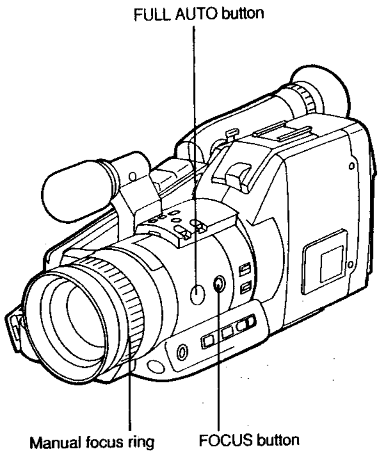
5 minutes

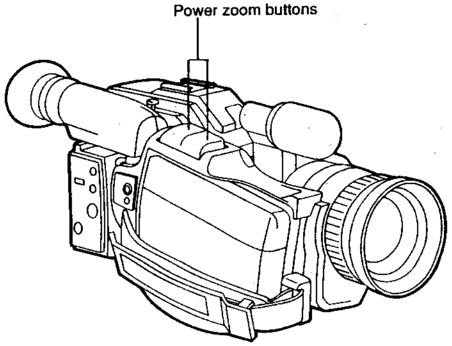
STOP → POWER OFF

RECORD PAUSE → POWER OFF

PLAY PAUSE (STILL) → POWER OFF

ADVANCED VIDEOGRAPHY TECHNIQUES





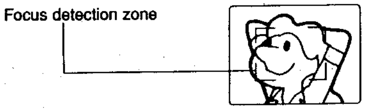
Note:

- If the lens is smeared with stains or blurred with condensation, accurate focusing is not possible. Keep them clean. If they become dirty, wipe with a piece of soft cloth. When condensation occurs, dry them by wiping with a soft cloth or wait for conditions in which they become dry.

1 FOCUSING

Auto-focus

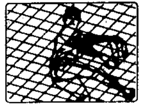
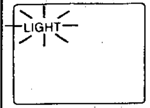
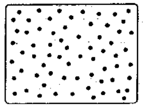
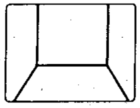
- A small area around the center of the picture, which varies depending on the zoom and focus conditions, is used to detect focus. (no actual indication provided on the screen.)



CAUTION

- When not in use, do not leave the VideoMovie in the Auto Focus mode with power on; otherwise light entering the lens will operate the auto-focus mechanism, consuming power.

- Correct focus may not be obtained in the following situations. In such case manual focusing should be performed to obtain proper focus.

	Two subjects at different distances overlap in the same scene.
	Low illumination.
	Minute patterns or identical patterns that are regularly repeated.
	The subject has no contrast (differences is brightness and darkness), such as a flat, one color wall, or a clear, blue sky, for instance.

Manual focus

For manual focus operation, proceed as follows:

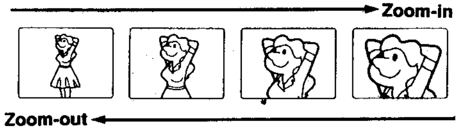
1. Press the FOCUS button to release the Auto Focus mode.
2. Zoom in on a subject by pressing the "T" button.
3. Focus onto it by turning the manual focus ring.
4. Determine the composition by pressing the "W" button.

Notes:

- To release the Manual Focus mode (to engage the Auto Focus mode), press the FOCUS button or FULL AUTO button.
- When you use the Manual Focus mode, be sure to focus the lens in the maximum telephoto position. If you focus in on a certain subject in the wide-angle position, sharply-focused images cannot be obtained when zoomed up because the depth-of-field is reduced at longer focal lengths.

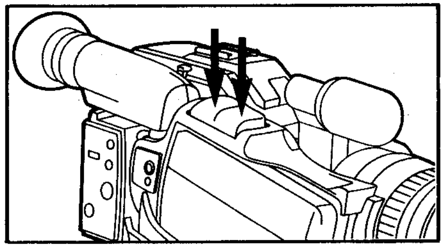
2 ZOOMING

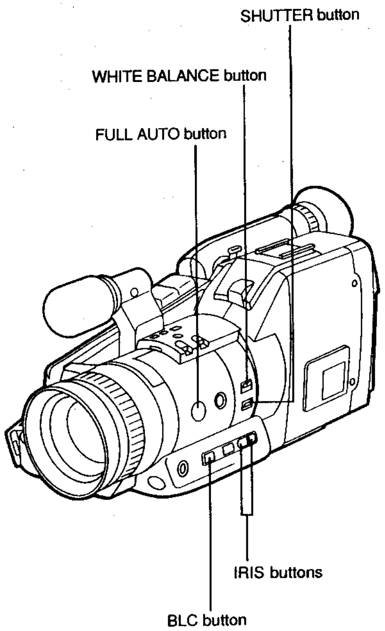
When the focal length of the lens is varied by pressing the power zoom buttons, the image appears to come nearer to or retreat from the viewer.



Procedure

- Press "T" for zooming in and "W" for zooming out.
- Two zooming speeds are available. For slow-speed zooming, press lightly. For regular-speed zooming, press firmly.





3 MACRO SHOT

The GR-303U's Full Range AF system can offer continuous shooting ability from close-up to infinity.

Procedure for Macro shooting

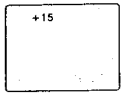
1. Press the "W" power zoom button until the lens zooms out completely.
2. Position the subject in auto-focus detection zone.

- For best results, increase illumination when shooting in the Macro mode.

4 IRIS CONTROL

Iris is automatically adjusted in the Full Auto mode. However, you can adjust it manually from its current setting.

1. Press either IRIS button ("+" or "–"). The iris indication appears on the viewfinder screen.
2. Select the required iris level.
   IRIS "+" button: Each time it is pressed, the aperture opens one step, up to +15 steps.
   IRIS "–" button: Each time it is pressed, the aperture closes one step, up to –15 steps.



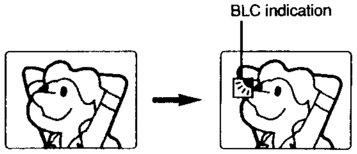
Viewfinder

- The viewfinder indication shows the selected setting, indicating only the over- or underexposure status.
- When you simply wish to compensate for strong backlightning, see the "Backlight Compensation" section on the next page.
- To restore the standard "0" iris setting, press the "+" and "–" buttons simultaneously.

5 BACKLIGHT COMPENSATION

When excessive lighting is located in back of the subject, correct exposure may not be obtainable.
To compensate for this, use BLC.

- Press the BLC button. The BLC indication appears on the viewfinder screen. While it is being pressed, the iris is 1–2 f-stops wider than that adjusted automatically.
  Releasing the button within 1.5 seconds locks the BLC condition. To cancel, press it again.



Without BLC   With BLC

6 WHITE BALANCE ADJUSTMENT

The GR-303U's Automatic Color Tracking system senses the color temperature of the ambient lighting for automatic white balance adjustment.
However, precise color temperature adjustment is not possible under the following conditions.

- The light falling on the object being shot and the light around the camera are of different color temperatures.
- Either the object or the camera is in an area covered by a shadow.

In these cases, use the VideoMovie's built-in filters for white balance adjustment.

- Press the WHITE BALANCE button so that the required symbol appears on the viewfinder and on the LCD.
  - ✺ : when the subject is illuminated by a halogen or tungsten lamp.
  - ▬ : when the subject is illuminated by a fluorescent lamp.
  - ☀ : when you shoot in the daytime outdoors.
- To switch to the automatic adjustment, press the WHITE BALANCE button until the indication disappears, or press the FULL AUTO button.

7 MULTIPLE-SPEED ELECTRONIC SHUTTER

The GR-303U is equipped with a selectable high-speed shutter that allows better recording of quick movements for sharp, clear stills or slow-motion playback.
Select it when taping fast-action shots that you will want to play back later on a VCR equipped with the Still or Slow-motion mode.

1. Press the SHUTTER button to switch to the desired electronic shutter speed. This can be done while Recording or in any other mode. It continues at the selected speed until switched to another speed.
2. Select the shutter speed among 1/10000, 1/4000, 1/2000, 1/1000,1/500, 1/250, 1/125, 1/100, 1/60 second and Auto mode by pressing the shutter speed changes in the following order:

Auto → 1/60 → 1/100 → 1/125 → 1/250
↑ ↓
1/10000 ← 1/4000 ← 1/2000 ← 1/1000 ← 1/500

- In the Auto mode, usually the shutter speed is set to 1/60 sec., but changes to 1/100 sec. whenever flickering caused by light sources such as fluorescent lamps is detected.

3. When finished recording the fast-action scene, switch back to the standard shutter speed by pressing the SHUTTER button until the SHUTTER indicator in the viewfinder disappears.

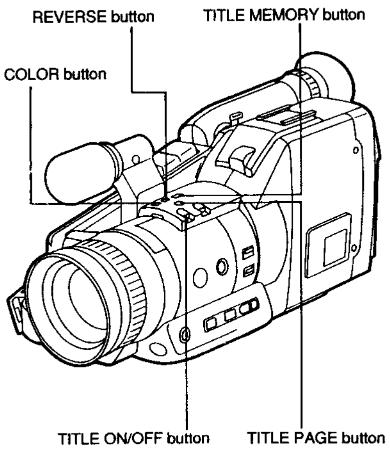
- When selected, the High-Speed Shutter mode is indicated on the viewfinder screen.

Notes:

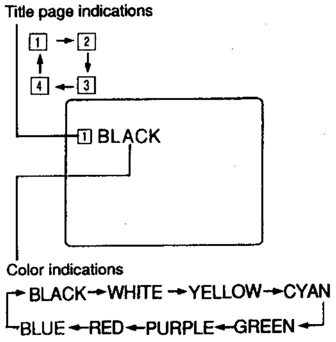
- The High-Speed Shutter mode requires slightly more subject illumination than the Standard Shutter mode. Therefore, the low-light warning may blink in the viewfinder. If so, switch to the Auto mode.
- Picture color may be adversely affected in the High-Speed Shutter mode when the subject is lit by alternating discharge-type light sources such as fluorescent or mercury-vapor lights.
- When playing back a section recorded in the High-Speed Shutter mode, movement of subjects in the picture may not be smooth. This is not due to any defect of the unit.
- Pressing the FULL AUTO button also restores the shutter speed to the Auto mode.

8 DIGITAL SUPERIMPOSE

The GR-303U's Digital Superimpose function allows 4 titles to be superimposed on a recording in a choice of 8 colors and either positive or negative (reversed) style for more creative video opportunity.



Viewfinder Indications



Notes:

- The page selection can be changed when the TITLE ON/OFF button is ON.
- When a page of memory contains nothing, it is "empty", and a pattern of stripes will appear in the viewfinder.

1 STORING TITLES

1. Put the VideoMovie into the Record-Pause or Rehearsal mode.
   - When the " CLOCK " indication (lithium battery warning) appears in the viewfinder, titles cannot be stored. Insert the lithium battery, or replace the inserted one with a new one according to the instructions on page 8.
2. Press the TITLE ON/OFF button.
3. Use the TITLE PAGE button to select the page of memory in which you want your title to be stored. The page number will appear on the viewfinder screen.
4. Aim the lens at your title in as well-lit a location as possible. You may also use the provided Title Easel for this purpose. Shoot in the Macro mode when using the Title Easel.
   - If, at this point, the stripes or an old title appearing in the viewfinder prove bothersome, press the TITLE ON/OFF button to turn it off.
   - When storing a title, the scene visible in the viewfinder may differ slightly from that which will be recorded on the tape.
5. Press the TITLE MEMORY button for about 1 second to store the title.
   - When a title is stored poorly, check to see that the lighting is adequate and that the title is drawn with bold strokes, then shoot the title again.
   - Every time the TITLE MEMORY button is pressed, the previously recorded title stored in that page of memory will be erased, and replaced with the new title.
6. Press the COLOR button to select the color in which you want your title to appear.
7. Press the REVERSE button to choose negative or positive style. To store additional titles, in digital memory pages 2 – 4, repeat steps 3 – 7 above.
   - The TITLE MEMORY button works in both the Record-Pause and Rehearsal modes; care should be exercised not to press TITLE MEMORY accidently as this will erase stored titles.

Creating titles

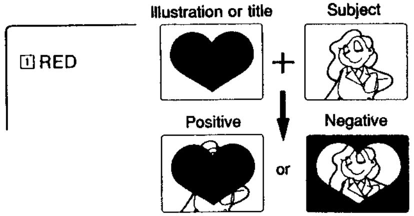
Make note of the following guidelines to assure best results.

1. Create titles using dark colors on light backgrounds—black writing on white paper, for example.
2. Letters should be drawn with broad strokes.

2 SUPERIMPOSING TITLES

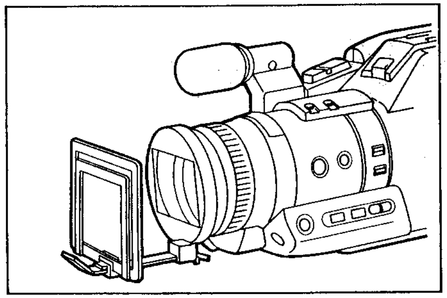
① Mixing a title at the beginning of a recording

1. Put the VideoMovie into the Record-Pause mode.
2. Press the TITLE ON/OFF button to display your title on the viewfinder screen.
3. Press the TITLE PAGE button until the title you wish to use is displayed. The pages will cycle from 1 to 4. Confirm the page, the color, and the positive/negative style. Color choice and positive/negative style can be changed at this point. Press the COLOR button to select a different color, and the REVERSE button to choose positive/negative style.



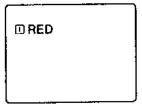
4. Press the unit's Recording Start/Stop button to begin recording. The title will now be mixed with what you are recording.
   Press the TITLE ON/OFF button when you wish to end the titled portion of your recording.

Provided title cards can be recorded by inserting it in the provided Title Easel.



② Inserting a title in the middle of a recording

1. Confirm the page, color, and positive/negative style of your title.
   Press the TITLE ON/OFF button to turn it off.



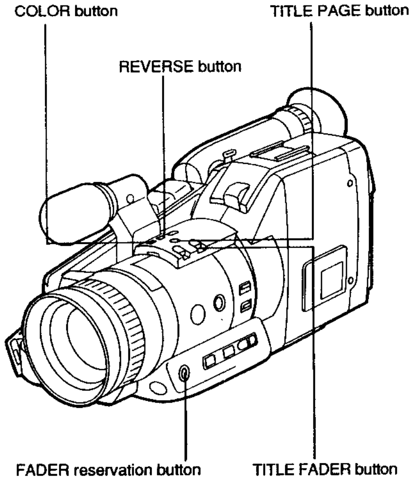
2. Shoot your live scene by pressing the Recording Start/Stop button.
   Press the TITLE ON/OFF (or TITLE FADER) button when you wish to insert your title. It will be inserted into your ongoing recording at exactly that point.
3. Press the TITLE ON/OFF (or TITLE FADER) button again to stop inserting your title with the action you are recording.

Notes:

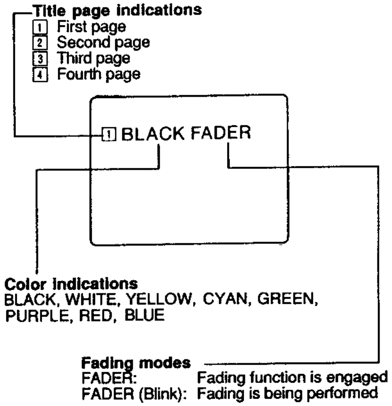
- Color choice, page number, and positive/negative selections can be changed when the title is displayed in the viewfinder.
- The "Color" and "Page number" indications displayed in the viewfinder will not be recorded on the tape.
- When an "empty" page is called from memory, a pattern of stripes will appear in the viewfinder.
- When the lithium battery for the unit's clock is exhausted, stored titles may be lost. For best results, replace the lithium battery before its one year required replacement date. When the lithium battery warning appears in the viewfinder, as long as power is still supplied to the unit by the main battery pack, or from an AC source (even if the unit's power switch is off), the digital memory will be retained, however, the lithium battery should be replaced at this time.
- With title off, press the COLOR button or PAGE button to check the page number and color for about 3 seconds. The "Color" and "Page number" can be changed.

9 COLOR FADER

The GR-303U incorporates a color fader which allows smooth video/audio fade-in and fade-out with a blank screen, with a choice of 8 background colors. The fader is simultaneously activated with the Recording Start/Stop button operation.



Viewfinder Indications



Title page indications

- 1 First page
- 2 Second page
- 3 Third page
- 4 Fourth page

Color indications

BLACK, WHITE, YELLOW, CYAN, GREEN, PURPLE, RED, BLUE

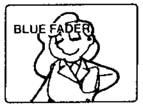
Fading modes

FADER: Fading function is engaged
FADER (Blink): Fading is being performed

1 BASIC FADE-IN/OUT OPERATION

① Fade-in

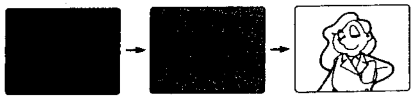
1. Aim the VideoMovie to the subject in the Record-Standby mode, then press the FADER button to engage the Fade-Standby mode. The previously selected color and "FADER" appear on the viewfinder screen.



2. Press the COLOR button to select the screen color from which fading starts. Each time it is pressed, the color changes in the following order and corresponding indication appears on the viewfinder screen.

BLACK → WHITE → YELLOW → CYAN → GREEN → PURPLE → RED → BLUE → BLACK

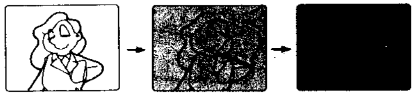
3. Press the Recording Start/Stop button. The screen immediately becomes blank with the selected color and recording begins. Fade-in starts at the moment the Recording Start/Stop button released. "BLUE FADER" in the viewfinder blinks until the fade-in is completed. If the button is not released, the screen will remain blank and be recorded (with no audio) as long as the button is kept pressed.



② Fade-out

1. Start shooting as usual.
2. Press the FADER button to engage the Fade-Standby mode. The previously selected color and "FADER" appear on the viewfinder screen.
3. Press the COLOR button to select the screen color to which fading ends.

4 Press the Recording Start/Stop button. The viewfinder indications start blinking. Fade-out starts and will be completed in about 5 seconds. When completed, the VideoMovie enters in the Record-Standby mode automatically. At this time, if the button is not released, the screen will remain blank and be recorded as long as the button is kept pressed.



Note:
- Viewfinder indications (selected color and "FADER") are not recorded.

2 TITLE FADE-IN/OUT OPERATION

The Color Fader can be used in combination with the Digital Superimpose function. Fading of "scene with title" (at the beginning or end of a recording) and fading of "title only" (in the middle of a recording) are both possible.

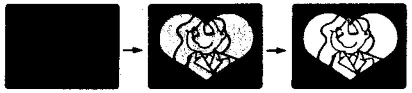
① **Fade-in**

1 Engage the Record-Standby mode.

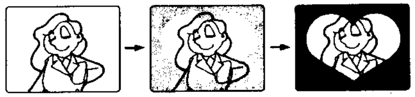
2 Press the TITLE ON/OFF button to display the already-stored title on the viewfinder screen.

3 Press the TITLE PAGE, COLOR and REVERSE buttons as required to make settings of your preference.

4 (A) When fading in a title simultaneously with the Recording Start/Stop button operation (title fade-in at the beginning of a recording):
Press the FADER button to engage the Fade-Standby mode. Then press the Recording Start/Stop button. The color blank screen appears and the button is released, fade-in of both the screen and title begins.



(B) When fading in a title in the middle of a recording:
Press the TITLE ON/OFF button again to clear the title, then press the Recording Start/Stop button to start recording.
Press the TITLE FADER button when you wish to insert the title. Fade-in of the title begins.

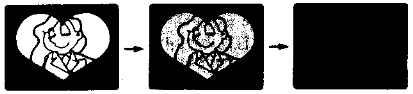


5 Press the TITLE ON/OFF button to clear the title.

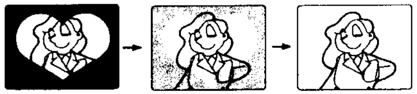
② **Fade-out**

1 Follow steps 1 to 3 of "fade-in" on the left. Then start recording.

2 (A) When fading out a title simultaneously with the Recording Start/Stop button operation (title fade-out together with the scene at the end of a recording):
Press the FADER button to engage the Fade-Standby mode. Fade-out of both the scene and title begins and will be completed in about 5 seconds. When completed, the VideoMovie enters the Record-Standby mode automatically. If the Recording Start/Stop button is not released, the screen will remain blank and be recorded as long as the button is kept pressed.

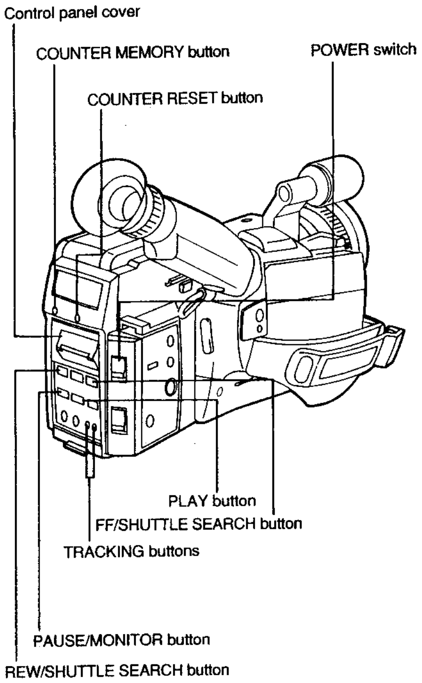


(B) When fading out a title in the middle of a recording (with recording still continuing):
Press the TITLE FADER button when you wish to fade out the title. Fade-out of the title begins.



Notes:
- With title off, press the COLOR button or PAGE button to check the page number and color for about 3 seconds. The "Color" and "Page number" can be changed.
- The Title Fader cannot be used when Fade-in/-out is engaged .
- The same color is used for both the Color Fader and title when the TITLE ON/OFF button is ON.

PLAYBACK



The GR-303U permits playback of recorded "VHS-C" video cassettes.
For connections refer to pages 24 and 25.

Preparations
- With a television equipped with audio/video input connectors, engage the Video (or AV) mode of the television.
- With a regular television, set the antenna select switch of the RF-V3U RF unit to VIDEO and the television's channel selector to your video channel (specified AV channel).

1 Connect a power supply unit. (Battery or AC operation: see pages 5 and 6.)

2 Slide the control panel cover to "PLAY".

3 Slide the POWER switch to turn power on.

4 Insert a pre-recorded VHS-C cassette.
- Ensure that tape is not slack inside the cassette, then load the cassette correctly. See page 36.

5 Press PLAY button. Playback will start.

STILL PLAYBACK

Press the PAUSE/MONITOR button during playback. The picture will stop on the screen.
- After about 5 minutes of still playback, the VideoMovie turns the power off automatically for tape protection.

SHUTTLE SEARCH

1 Fast-speed playback in the forward direction
Press the FF/SHUTTLE SEARCH button in the Play mode. Playback will be speeded up to 3 times normal speed in the SP mode, 7 times in the EP mode.

2 Fast-speed reverse playback
Press the REW/SHUTTLE SEARCH button in the play mode. The tape will be played back in the reverse direction at 3 times normal speed in the SP mode, 7 times in the EP mode.

Notes:
- For brief fast-speed searching, keep the SHUTTLE SEARCH button pressed for more than 2 seconds; when you release the button, the Search mode will be cancelled.
- Noise bars will appear and pictures may become monochrome while in these modes. This is not due to any defect of the unit.

DIGITAL TRACKING

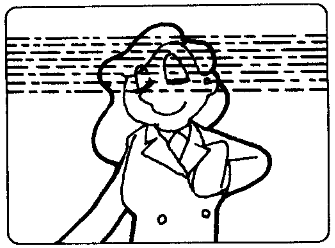
Digital tracking adjustment is performed automatically to obtain optimum pictures during playback. Adjust the tracking manually when noise bars appear on the screen. The tracking adjustment mode (Auto or Manual) is indicated on the LCD panel.

Manual tracking

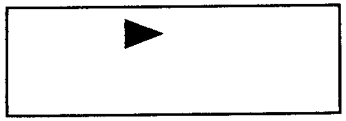
Manual tracking might be more effective, depending on video cassette being used.

1. Press the both TRACKING (–/+) buttons simultaneously for switching to cancel the automatic mode and enter the Manual Tracking mode.
2. Adjust to the best picture possible by pressing either TRACKING (–/+) button.
   - Press both buttons simultaneously again restores the (automatic) Digital Tracking mode.
   - In the Manual Tracking mode, if once the power is turned off and reapplied later, or if the cassette is ejected and reloaded later, the (automatic) Digital Tracking mode is restored automatically the next time a cassette is played back.

Note:
- For tapes recorded on another deck, tracking adjustment might not be effective.



LCD panel (Tracking Indication)



- Slow blinking — Manual Tracking
- Fast blinking — Auto Tracking continues
- Steady light — Auto Tracking completed

COUNTER MEMORY FUNCTION

The GR-303U incorporates a counter memory function which facilitates locating a specific tape segment.

1. Press the RESET button to reset the counter to "0".
2. Press the MEMORY button. The "M" mark will appear.
3. After recording or playback, press the STOP button, then the REW button. The tape will automatically stop at the counter reading of around "0".
4. Press the PLAY button to start playback.

Notes:
- The counter memory function is effective in the Fast Forward mode as well.
- To cancel the memory function, press the MEMORY button.
- When the power supply unit is disconnected, all indications on the LCD disappear and the counter memory function is instantly cancelled.

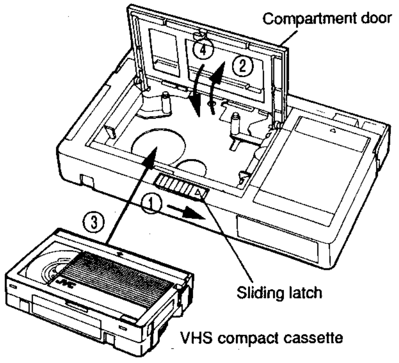
USING THE CASSETTE ADAPTER

By using the provided Cassette Adapter, a VHS-C video cassette recorded with this VideoMovie can be played back with any deck-type VHS video recorder. Also, a VHS-C video cassette installed in the cassette adapter is fully compatible for both recording and playback on any deck-type VHS video recorder.

Note:
- Only compact video cassette tapes marked VHS C can be used with the Cassette Adapter.

- **C-P6U Cassette Adapter**

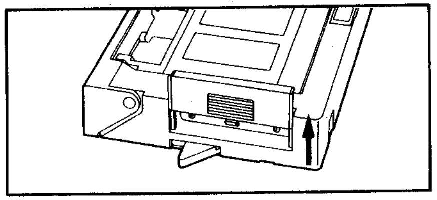
Being battery-operated, the C-P6U performs tape loading and unloading automatically.



Note:
- During special-effects playback (slow motion, still frame, etc.) the picture may vibrate or noise bars may appear on the screen.

Inserting the battery into the cassette adapter

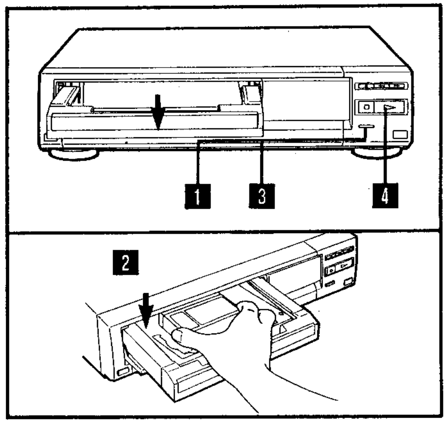
1. Remove the battery cover by sliding it up.
2. Install one "AA" battery and reattach the cover.



USING THE VHS/VHS-C COMPATIBLE VCR

A VHS/VHS-C compatible VCR can directly play back a VHS-C cassette without using a cassette adapter.

(VHS/VHS-C compatible VCR such as the JVC HR-SC1000U)



1. Press the OPEN/CLOSE button.
2. Place a cassette on the tray.
3. Press the OPEN/CLOSE button again.
4. Press the PLAY button. Playback starts.

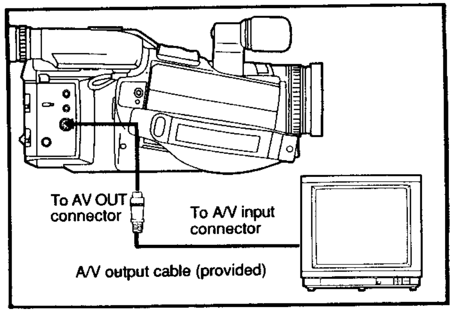
- When using a VHS/VHS-C compatible VCR, read the instruction manual of the VCR carefully.

CONNECTIONS TO A TELEVISION FOR PLAYBACK

1 Connection to a television equipped with A/V input connector

In this situation, use the provided A/V output cable.

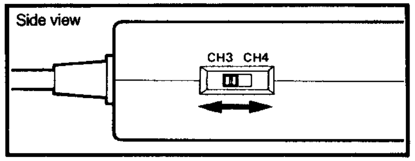
- Simply connect the AV OUT connector of the GR-303U to the A/V input connector of the television.
- Use the Video (or AV) mode specified on the television, in stead of tuning to channel 3 or 4.


To AV OUT connector
To A/V input connector
A/V output cable (provided)

2 Connection to a television not equipped with A/V input connector

In this situation, use the optional RF-V3U RF unit.

1 Set the out put channel select switch of the RF-V3U to CH3 or CH4.


Side view
CH3 CH4

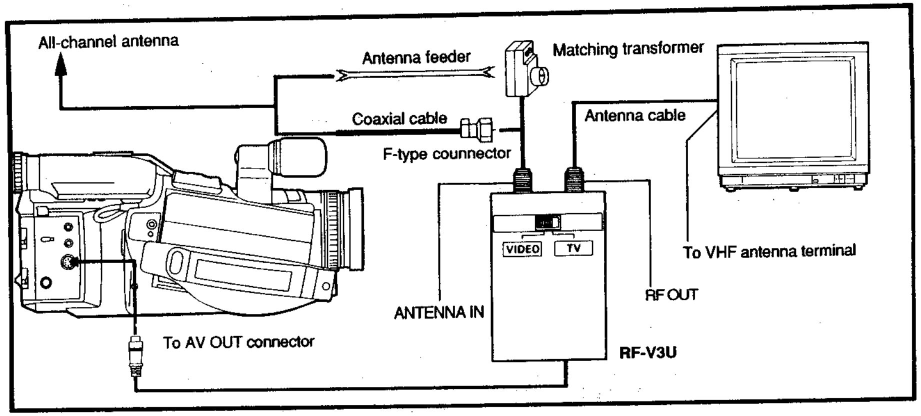
- The RF unit permits playback of the video and audio recordings through a TV receiver. The signals from the RF unit are viewed through a vacant channel not used for broadcasting in your area.
- The RF unit has been set to CH3 prior to shipment. Reset the channel to CH4 (using a screwdriver) in areas where channel 3 is employed for broadcasting.
- This is your video channel. To view video cassettes, always set the TV channel selector to either channel 3 or 4.

PRECAUTIONS FOR RF-V3U

- For exclusive use with the VideoMovie.
- Do not disassemble or remodel the RF-V3U.
- Do not expose it to strong shocks.
- Unplug the connected equipment during lightning storms. (Never touch the antenna cable.)

2 Remove the antenna cable from the TV receiver.

3 Connect the antenna cable to the ANTENNA IN terminal of the RF unit.

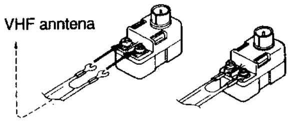

All-channel antenna
Antenna feeder
Matching transformer
Coaxial cable
Antenna cable
F-type counnector
VIDEO
TV
To VHF antenna terminal
RF OUT
ANTENNA IN
To AV OUT connector
RF-V3U

4 Connect the RF OUT terminal of the RF unit to the 75-ohm coaxial antenna terminal of the television using the provided antenna cable.

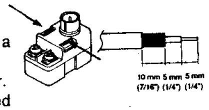
5 Connect the VIDEO/AUDIO INPUT cable of the RF unit to the AV OUT connector of the GR-303U

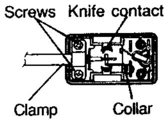
How to affix the matching transformer to your VHF antenna cable

- If your VHF antenna cable is a 300-ohm flat feeder, connect the two lugs to the screws in an ordinary manner.
- If your VHF antenna cable is a 75-ohm coaxial cable, proceed as follows:


VHF anntena

1. Press both side tabs inward and slide the cover off.
2. Strip the coaxial cable with a pair of wire strippers, a knife, or the like as shown.
3. Remove the collar and put it on the pole inside the cover.
4. Loosen the screw for the clamp and insert the stripped cable so that the braided portion is positioned under the clamp.
5. Inset the stripped end (core conductor) of the cable from above into between the knife contacts.
6. Tighten the screws.
7. Replace the cover.


10 mm 5 mm 5 mm
(7/16") (1/4") (1/4")


Screws
Knife contact
Clamp
Collar

Viewing video cassettes being played back with the GR-303U

To view video cassettes or to monitor the recording, set the VIDEO/TV switch of the RF unit to VIDEO and TV channel selector to the channel corresponding to the RF-output channel (3 or 4).

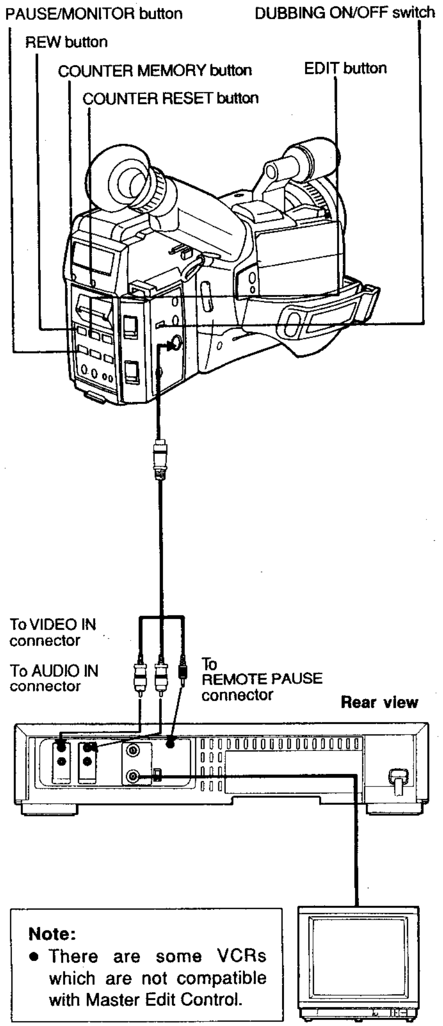
Viewing television programs

Set the VIDEO/TV switch to TV, and the TV receiver will function as usual.

EDITING TECHNIQUES

1 MASTER EDIT CONTROL SYSTEM (Assemble Editing) (When using a JVC VCR equipped with a Remote Pause terminal)

This feature functions only when using a designated JVC VCR equipped with a Remote Pause terminal. The Master Edit Control system enables control of the VCR via the VideoMovie's controls, for quality preroll editing without transition-point gaps and distortion.



PAUSE/MONITOR button
DUBBING ON/OFF switch
REW button
COUNTER MEMORY button
EDIT button
COUNTER RESET button
To VIDEO IN connector
To AUDIO IN connector
To REMOTE PAUSE connector
Rear view

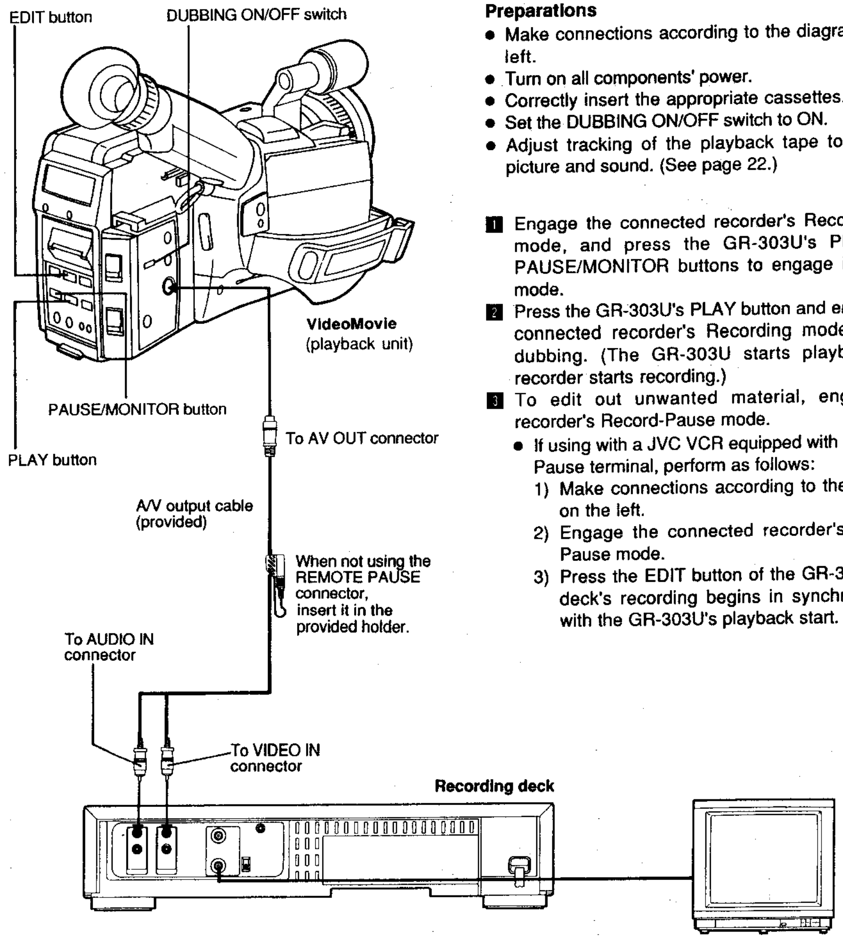
Note:
- There are some VCRs which are not compatible with Master Edit Control.

Preparation
- Connect the GR-303U and the recording deck as in the diagram on the left.
- Turn on both the GR-303U and the recording deck.
- Correctly insert the appropriate cassettes into the GR-303U and the recording deck.
- Adjust tracking of the playback tape to optimize picture and sound. (See page 22.)

1. Engage the recording deck's Record-Pause mode. (At this time, the tape in the deck winds backward for 1.3 seconds.)
2. Set the DUBBING ON/OFF switch of the GR-303U to ON.
3. Engage the GR-303U's Play mode to locate the edit-out point on the tape. When this point is reached, press PAUSE/MONITOR.
4. Press RESET on the GR-303U then press MEMORY. "0 M" will appear on the LCD panel.
5. Press REW to locate the edit-in point. When it is reached, engage the Still mode.
6. Press EDIT on the GR-303U to start editing.
   - At this time, the GR-303U and the recording deck carry out the following procedure automatically.
     1) The GR-303U prerolls the tape for 5 seconds then starts playback to stabilize the tape run.
     2) After the GR-303U has played back for 3.7 seconds, it sends a command signal to the recording deck. The deck then starts playback together with the GR-303U for 1.3 seconds.
     3) When the GR-303U's tape reaches the edit-in point, the deck starts recording in synchronization with it.
7. When the GR-303U's tape reaches the edit-out point (counter reading of "0"), the VideoMovie enters the Still mode and the recording deck enters in the Record-Pause mode automatically.
   - Repeat above steps as required.
   - When the tape reaches the preset edit-out point during the dubbing operation, it may stop slightly before or after the designated point on the tape.

2 TAPE DUBBING (Dubbing to a second recorder)

In order to preform simple dubbing of an entire tape, proceed as follows.



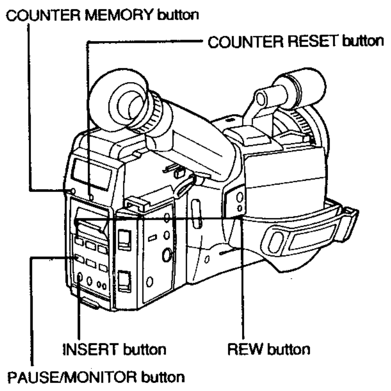
EDIT button
DUBBING ON/OFF switch
VideoMovie
(playback unit)
PAUSE/MONITOR button
PLAY button
To AV OUT connector
A/V output cable (provided)
When not using the REMOTE PAUSE connector, insert it in the provided holder.
To AUDIO IN connector
To VIDEO IN connector
Recording deck

Preparations
- Make connections according to the diagram on the left.
- Turn on all components' power.
- Correctly insert the appropriate cassettes.
- Set the DUBBING ON/OFF switch to ON.
- Adjust tracking of the playback tape to optimize picture and sound. (See page 22.)

1. Engage the connected recorder's Record-Pause mode, and press the GR-303U's PLAY and PAUSE/MONITOR buttons to engage its Pause mode.
2. Press the GR-303U's PLAY button and engage the connected recorder's Recording mode to start dubbing. (The GR-303U starts playback; the recorder starts recording.)
3. To edit out unwanted material, engage the recorder's Record-Pause mode.
   - If using with a JVC VCR equipped with a Remote Pause terminal, perform as follows:
     1) Make connections according to the diagram on the left.
     2) Engage the connected recorder's Record-Pause mode.
     3) Press the EDIT button of the GR-303U. The deck's recording begins in synchronization with the GR-303U's playback start.

3 INSERT EDITING

Insert editing means recording a new scene into a section of prerecorded tape so that a part of the original recording can be replaced with a new sequence without excessive picture distortion at the edit-in and edit-out points. In the Insert Edit mode, the original audio on the normal audio track remains unchanged.



1. Slide the control panel cover to "PLAY".
2. Locate the desired edit-out point on the VideoMovie's tape and press PAUSE/MONITOR.
3. Press RESET to obtain a "0" reading, then press MEMORY to obtain an "M" indication on the LCD.
4. Press REW to rewind the tape a little beyond the beginning of the scene your wish to insert.
5. Press PAUSE/MONITOR exactly at the beginning of the scene you wish to insert.
6. While holding INSERT pressed, press PAUSE/MONITOR. The INSERT indicator lights and the VideoMovie enters the Insert Edit mode with the scene at which the VideoMovie is aimed appearing on the screen for monitoring.
7. Press the Recording Start/Stop button to insert the new sequence.
8. When the counter reading of "0" is reached, insert editing stops automatically and the VideoMovie enters the Playback mode.

Notes:

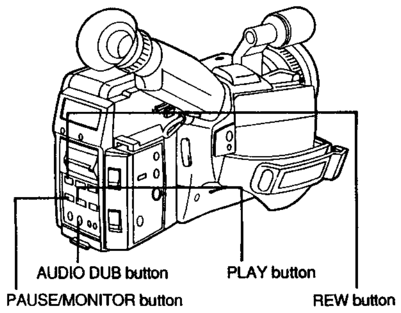
- When the tape reaches the preset edit-out point during the editing operation, it may stop slightly before or after the designated point on the tape. Also, at that time, noise bars may appear momentarily. Neither of these is a defect of the unit.
- Only video signal is recorded in the Insert Editing mode. When the sound is to be recorded, press the AUDIO DUB and PAUSE/MONITOR buttons simultaneously in the Insert Pause mode. When INSERT and PAUSE/MONITOR buttons are pressed simultaneously again, the unit re-enters the Video-signal-only Recording mode.

4 AUDIO DUBBING

Audio dubbing means recording a new soundtrack on a pre-recorded tape, i.e., replacing the original sound with new audio material.

Precautions

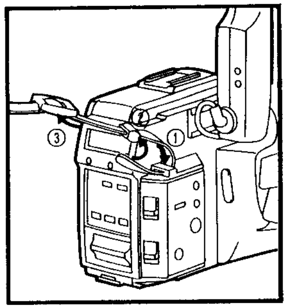
- Tapes with their safety tabs removed cannot be audio dubbed. Reseal the safety tab slot to perform the dubbing.
- If whistling or howling is heard during audio dubbing, reduce the TV volume of move the mike farther away from the TV.
- When dubbing from a microphone, connect the microphone to the VideoMovie.

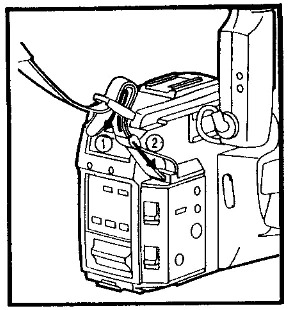


1. Locate the desired edit-out point on the VideoMovie's tape and press PAUSE/MONITOR.
2. Press RESET to obtain a "0" reading, then press MEMORY to obtain an "M" indication on the LCD.
3. Press REW to locate more quickly the place on the tape you want audio dubbing to begin.
4. Press PAUSE/MONITOR at the exact beginning point for audio dubbing.
5. While pressing AUDIO DUB, press PAUSE/MONITOR to enter the Audio Dub Standby mode.
6. When you are ready, press PLAY to begin audio dubbing.
7. When the counter reading of "0" is reached, audio dubbing stops automatically and the VideoMovie enters the Playback mode.

USING ACCESSORIES

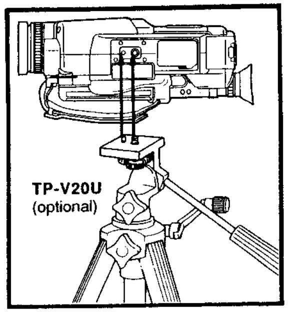
ATTACHING THE SHOULDER STRAP (provided)





1. Loop the end of the strap over the top of the eyelet ①, then, folding it back, thread the end of the strap first through the keeper ②, then the buckle ③. Making sure that the strap is not twisted, repeat the above procedure to attach the other end of the strap to the other eyelet.
2. Adjust the shoulder strap to the desired length ①, then slide both keepers up snug against the eyelets to prevent the strap from slipping ②.

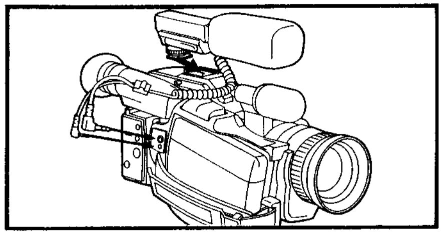
TRIPOD MOUNTING



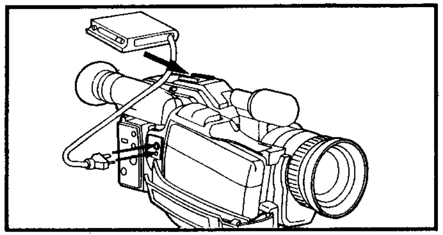
Align the screw and camera direction stud of the tripod with the camera's tripod mounting socket and stud hole, and firmly tighten the screw.

EXTERNAL MICROPHONE (optional)

To use another microphone, do the following:



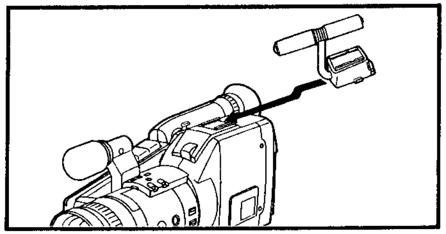
Plug the external microphone's cord into the MIC jack.



Attaching a wireless microphone unit.

CARRYING HANDLE (optional)

Attaching the carrying handle VU-V135U.

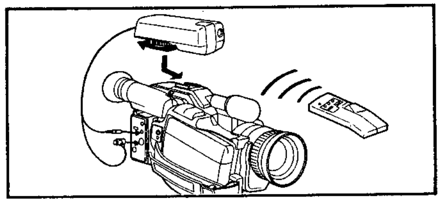


CAUTION

This VidoMovie's accessory shoe is not designed to normally have a video light unit installed on it. However, if a low-power video light unit is installed, direct its light horizontally or upward while shooting, so that it does not shine directly on the VideoMovie's body. Since a video light unit and its surroundings become hot, be careful not to burn yourself when using one. Read the video light unit's instruction manual and handle the unit with care.

USING THE REMOTE CONTROL UNIT RM-V50U/ RM-V20U(optional)

The RM-V50U and RM-V20U permit VCR functions to be controlled from a distance.
*Before use the RM-V50U/RM-V20U, see these instruction booklets.



- Functions of the RM-V50U's control buttons vary depending on the GR-303U's control panel cover postion.

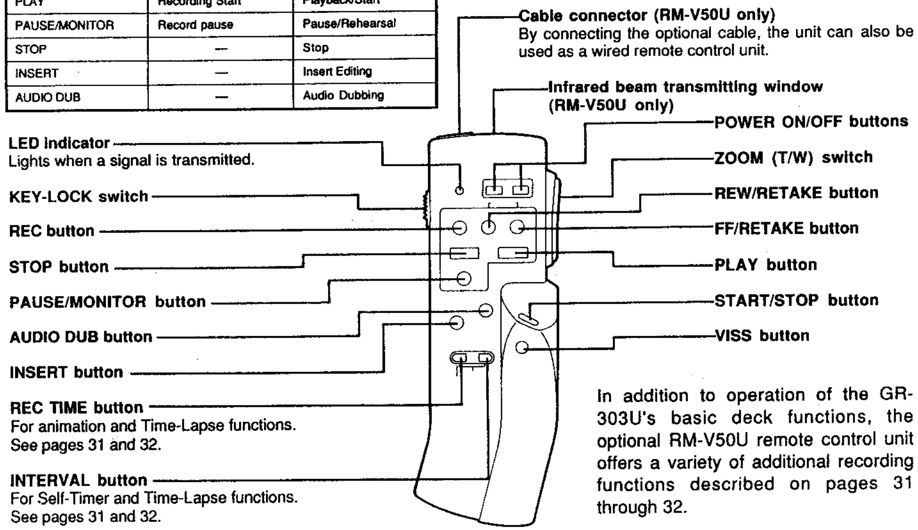
Buttons	Functions	
	With the VideoMovie's control panel cover set to "REC".	With the VideoMovie's control panel cover set to "PLAY".
POWER ON	Power on (Does not function when using the Receiver.)	
POWER OFF	Power off	Power off
REC	—	—
START/STOP	Functions same as the Recording Start/Stop button of a VideoMovie.	
REW/RETAKE	Retake (Rewind)	Rew/Rew Shuttle Search
FF/RETAKE	Retake (Forward)	FF/FF Shuttle Search
REC TIME	Animation/Time-Lapse	—
INTERVAL	Self-Timer/Time-Lapse	—
VISS	Index Code Marking	—
PLAY	Recording Start	Playback/Start
PAUSE/MONITOR	Record pause	Pause/Rehearsal
STOP	—	Stop
INSERT	—	Insert Editing
AUDIO DUB	—	Audio Dubbing

1. Attach the infrared beam receiving unit to the accessory shoe of the VideoMovie, then connect the REMOTE plug of the unit to the VideoMovie's REMOTE jack.
2. Operate the remote control unit while directing the beam transmitting window at the beam receiving unit.

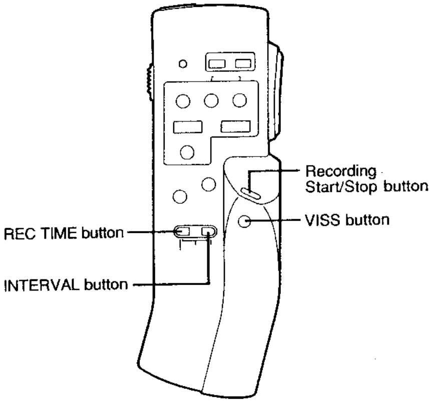
Installing the batteries
1. Slide the battery compartment cover on the rear of the unit.
2. Insert 2 "AAA-size" batteries (provided) in the correct directions into the battery compartment.
3. Replace the cover.

Precautions
- Avoid violent shocks, especially take care not to drop the unit.
- Take care not to allow liquid to spill into the unit.
- Do not place heavy objects on the unit.
- Avoid leaving the unit in places subject to direct sunlight or extremely high temperatures.

- The optional RM-V50U remote control unit can operate the VideoMovie from a distance of up to 5 m.
- The transmitted beam may not be effective when the Beam receiver is directly exposed to sunlight. In such a case, use the transmitter as a wired remote control unit.


Cable connector (RM-V50U only)
By connecting the optional cable, the unit can also be used as a wired remote control unit.
Infrared beam transmitting window (RM-V50U only)
POWER ON/OFF buttons
ZOOM (T/W) switch
REW/RETAKE button
FF/RETAKE button
PLAY button
START/STOP button
VISS button
LED indicator
Lights when a signal is transmitted.
KEY-LOCK switch
REC button
STOP button
PAUSE/MONITOR button
AUDIO DUB button
INSERT button
REC TIME button
For animation and Time-Lapse functions.
See pages 31 and 32.
INTERVAL button
For Self-Timer and Time-Lapse functions.
See pages 31 and 32.

In addition to operation of the GR-303U's basic deck functions, the optional RM-V50U remote control unit offers a variety of additional recording functions described on pages 31 through 32.


Recording Start/Stop button
VISS button
REC TIME button
INTERVAL button

1 INDEX CODE MARKING

The VHS Index Search System (VISS) gives you automatic access to any point you select on a recording. Only the marking aspect of the Index Search System is included in this unit. It allows index codes to be placed on recorded tape for convenient dubbing or editing on VCRs with an Index Search function.

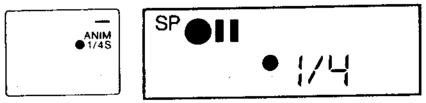
- Press the VISS button once to put an index code onto the tape. The INDEX mode indication blinks in the viewfinder during the marking process.
- When the "INDEX" indication appears in the viewfinder, no VideoMovie functions can be executed.
- If the VISS button has been pressed in the Record-Pause mode, an index code is put at the point where the Recording Start/Stop button is pressed.

2 ANIMATION

The Animation function produces the illusion of movement in otherwise stationary scenes or objects. This technique is accomplished by shooting a series of slightly different pictures of the same scene or slightly different poses of the same object for a brief period of time.

1. Set the Recording mode switch to "SP".
2. Put the VideoMovie in the Record-Pause mode.
3. Press the REC TIME button.

- The following information will appear in the viewfinder and LCD panel with an initial setting for 1/4(S) to show the camera is set to record for about 1/4 second.


ANIM
● 1/4S
SP ● II
● 1/4

Viewfinder **LCD panel**

4. Press the REC TIME button again to select the desired recording time. The following sequence of time setting is displayed with each press of the button:

1/4S (1/4) → 1/2S (1/2) → 1S (1) → (regular recording mode)

5. Press the Recording Start/Stop button after focusing the VideoMovie on the subject.
   - Recording stops automatically in the Record-Pause mode after the selected period of time.
6. Repeat steps 4-5 for the required number of pictures.
7. Playback the recorded series to check if results were satisfactory.

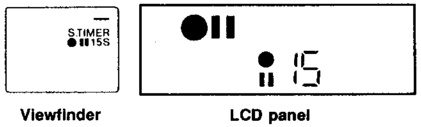
To release the Animation mode
Press the REC TIME button until the "ANIM" indicator in the viewfinder disappears, or slide the control panel cover to "PLAY".
- The Animation mode can only be engaged from the Record-Pause mode.

Notes:
- Keep the VideoMovie steady in one position when filming the series of shots for best results. Mounting the VideoMovie on a tripod is recommended.
- Set the REC TIME ON/OFF button to OFF when performing the Animation on Time-Lapse shooting.
- Before recording in the Animation mode at the very beginning of a tape, set the VideoMovie to the Recording mode for about 5 seconds, so that the tape runs smoothly. Using the Fade-in function at this point is a good way to begin an animated program.
- Fade-in/out is not possible while the Animation or Time-Lapse shooting.

3 SELF-TIMER

The Self-Timer function allows you to set the amount of time delay before recording starts after the Recording Start/Stop button has been pressed. If the VideoMovie has been secured, the operator can enter the picture before actual recording begins.

1. Put the VideoMovie into the Record-Pause mode.
2. Press the INTERVAL button.
   - The following information will appear in the viewfinder and LCD panel with an initial setting for 15(S) to show the VideoMovie is set for a 15-second delay before recording begins.



Viewfinder LCD panel

3. Select the desired interval time by pressing the INTERVAL button repeatedly. The following sequence of time setting is displayed with each press of the button:

15S ⟶ 30S ⟶ 1M (60) ⟶ 5M (300) ⟶ (regular recording mode)

4. Press the Recording Start/Stop button. When the selected time has elapsed, recording begins automatically.
   - When performing Self-Timer shooting, the tally lamp will start blinking approximately 10 seconds before the actual recording begins. Then when recording starts, the lamp lights normally to indicate recording is in progress.

To release the Self-Timer mode

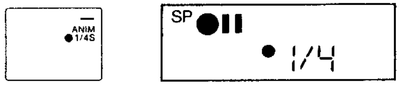
When "–" is not blinking:
Press the INTERVAL button continuously until the Self-Timer indication goes off.
When "–" is blinking:
Press the Recording Start/Stop button to stop the blinking, then press the INTERVAL button continuously until the Self-Timer indication goes off.

- Turning the power off and on once engages the regular Record-Pause mode.

4 TIME-LAPSE

The Time-Lapse function allows automatic sequential on/off recording at preset time spans. With the VideoMovie continuously focused on a specific scene or object, the resulting recording will show subtle changes (such as shifts in cloud formations, plant growth etc.) over an extended period of time.

1. Set the Recording mode switch to "SP".
2. Put the VideoMovie into the Record-Pause mode.
3. Press the REC TIME button.
   - The following information will appear in the viewfinder and LCD panel with an initial setting for 1/4(S) to show the VideoMovie is set to record for 1/4 second.

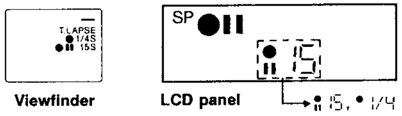


Viewfinder LCD panel

   - Select the desired recording time by pressing the REC TIME button repeatedly. The following sequence of time settings is displayed with each press the button:

1/4S ⟶ 1/2S ⟶ 1S ⟶ (regular recording mode)

4. Press the INTERVAL button.
   - The following information will appear in the viewfinder with an initial setting for 15 seconds.



Viewfinder LCD panel

alternately appearing

5. Select the desired interval time by pressing INTERVAL button repeatedly. The following sequence of time settings is displayed with each press of the button:

15S ⟶ 30S ⟶ 1M (60) ⟶ 5M (300) ⟶ (regular recording mode)

6. Press the Recording Start/Stop button to start the Time-Lapse recording. The selected recording time and interval will alternate automatically.
   - The tally lamp functions in the same way as in Self-Timer shooting.

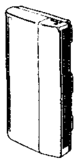
To release the Time-Lapse mode

When "–" is not blinking:
Press the INTERVAL and REC TIME buttons continuously until the Time-Lapse indication goes off.
When "–" is blinking:
Press the Recording Start/Stop button to stop the blinking, then press the INTERVAL and REC TIME buttons continuously until the Time-Lapse indication goes off.

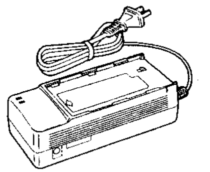
SYSTEMS FLEXIBILITY

For maximum enjoyment, make the most of the provided or optional accessories depending on the situation.

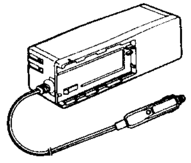
- **Regular battery pack BN-V5GU**
- **High-capacity battery pack BN-V6GU**
- **Super High-capacity battery pack BN-V7GU**
  Pages 5 and 6



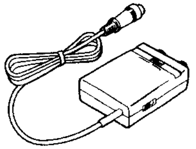
- **AC power adapter/battery charger AA-V6U**
  Pages 5 and 6
  Use to power the GR-303U with household AC current or charge the battery pack.



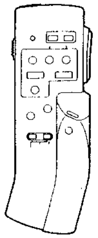
- **Car battery charger/adapter BH-V5U**
  Page 6
  Use to charge the battery pack, or power the GR-303U using a car battery.



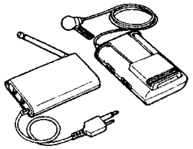
- **RF unit RF-V3U**
  Page 24
  Use to connect the GR-303U to a regular television for playback.



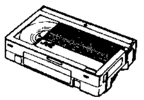
- **Remote control unit RM-V50U/RM-V20U**
  Page 30
  Controls VideoMovie's VCR functions from a distance.



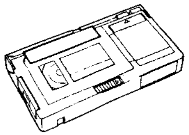
- **Wireless microphone unit WM-V1U**
  Page 29
  Allows remote sound recording, for expanded movie-making flexibility.



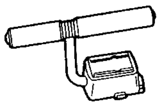
- **VHS-C cassettes TC-30/20**
  Page 36
  Allows 30/20 minutes of VHS recording and playback respectively.



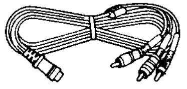
- **Cassette adapter C-P6U**
  Page 23
  Enables the or VHS-C cassette to be used with regular VHS machines.



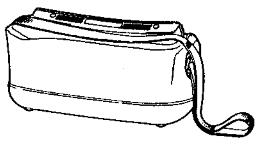
- **Carrying handle VU-V135U**
  Page 29
  Use to carry the GR-303U.



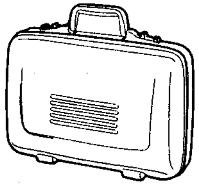
- **A/V output cable VC-V826U**
  Pages 24, 26 and 27
  Use to connect the GR-303U to a stereo television equipped with audio/video input connectors (or an audio component system) for playback, or a VCR equipped with stereo audio inputs for dubbing or editing.



- **Carrying bag CB-V25U**
  Use to carry the GR-303U together with accessories.



- **Carrying case CB-V33U**
  Use to carry the GR-303U together with accessories.



Some accessories not available in some areas.

SUPPLEMENTAL INFORMATION

What is "color temperature"?

Light is composed of various color components in different proportions. A relationship exists between the temperature of a light source and the color components of the emitted light; as the temperature rises, the color of the light varies from red, orange, yellow, white to blue in that order. "Color temperature" is a value that expresses differences in color among light sources, measured in Kelvin degrees. Bluish light has a higher color temperature than reddish light.

What is "white balance"?

Making the colors look natural on TV is what white balance is all about. Because a camera is not as adaptable as the human eye, if a light source is reddish, white subjects in that light are recorded as reddish. White balance adjustment is performed to compensate for color temperature variations of light so that whites are reproduced as white. Correct white balance makes all other colors correct. The GR-303U can perform automatic white balance adjustment in the Full Auto mode. However, if illumination is insufficient, white balance adjustment cannot be performed. To obtain correct colors, therefore, sufficient illumination is essential.

What is "illuminance"?

"Illuminance" (also called "luminance") is the intensity or brightness of light, expressed in lux. The GR-303U is designed to provide best pictures under the conditions of a 700-lux (67 fc) illuminance, although shooting is possible all the way down to 2 lux (0.2 fc). To obtain good pictures in very bright light, the use of an ND (neutral density) filter is recommended. (See chart on the right.)

How to get good color pictures.

The simplest way is to provide sufficient lighting (close to the camera's reference illuminance) and accurately adjust the camera to the color temperature of that lighting. If light sources of different color temperatures are used together, accurate white balance adjustment is very difficult. For example, if natural light is mixed with artificial light, which is likely to occur next to windows, correct colors of the subject are difficult to obtain. It is recommended in such cases that curtains in the room be closed to shut out light from outside. Also, when artificial lighting devices are used, they should all have the same color temperature. For example, it is recommended that incandescent or halogen lamps not be used together with fluorescent lighting.

Color temperatures of various artificial lighting

Type of illumination		Color temperature
Tungsten lamp for home use		2800 K
Tungsten lamp for photographic use		3200 K
Quartz-halogen lamp		
Blue lamp for photographic use		5000 K
Fluorescent lamp	Warm white	3500 K
	White	4500 K
	Daylight type	6500 K

Illumiance chart

- The values on this chart are approximated to give you a rough reference.

	Unit: Lux (fc)	
ND filter desired	100,000 (9,300)	• Clear sky, mid-day, under sunlight 100,000 (9,300)
		• Clear sky (10:00 a.m.) under sunlight 65,000 (6,045)
Range for practical use		• Clear sky (3:00 p.m.) under sunlight 35,000 (3,255)
		• Cloudy sky (mid-day) under sunlight 32,000 (2,976)
		• Cloudy sky (10:00 a.m.) under sunlight 25,000 (2,325)
	10,000 (930)	
		• By the window during the afternoon 3,500 (324)
	2,000 (190)	• Cloudy sky (one hour after sunrise) 2,000 (190)
	1,000 (94)	• Clear sky (one hour before sunset) 1,000 (94)
	600 (55)	• Counters at department stores 500–700 (47–66)
Lighting desired	500 (47)	• Bowling center 500(47)
		• Office under fluorescent light 400–500 (37–47)
		• Library 400–500 (37–47)
		• Direct light of a flashlight at 1 m (3ft) distance 250 (22.7)
	100 (9)	• Streetlight at night 150–200 (13.5–18)
	80 (7.3)	
	Minimum lighting for an object	
	15 (1.4)	• Cigarette lighter(at a distance of 30 cm/11.8 in.) 15 (1.4)
	10 (1)	• Candlelight(at a distance of 20 cm/7.9 in.) 10–15 (1–1.4)

CAUTIONS

For safety, strictly observe the following instructions.

- Do not open the cabinet.
- Prevent inflammables, water and metallic objects from entering the unit.
- Do not disassemble or modify the unit.
- Do not use the unit when there is lightning in the vicinity. Disconnect the power cable of connected equipment.

Avoid using the unit under the following conditions:

- Places subject to excessive humidity or dust.
- Near appliances generating strong magnetic or electric fields (speakers, broadcasting antennas, etc.).
- Places subject to soot or steam such as near a cooking stove.
- Places subject to excessive shock or vibration.
- Near a television set (rolling pictures or howling might result).
- Extremely hot places.

Do not expose the unit to high temperatures over 40°C (104°F) for long periods.

If the unit should be subjected to direct sunlight, or left in a closed car in summer, or placed near a heater, the CCD may deteriorate and the cabinet may become deformed. Furthermore, this also may cause the transistors and other electronic and mechanical parts to malfunction. Remember the following:

- Do not leave the unit in places of over 50°C (122°F).
- Do not use the unit in places of over 40°C (104°F).
- Do not use the unit in places of below 0°C (32°F).
- Protect the unit from excessively dry or humid conditions (below 35% or above 80% humidity).
- For long storage, select a place between –20°C (–4°F) and 30°C (86°F).

Take special care for protection of the unit.

- Do not allow the unit to become wet.
- Do not leave the unit in closed cars on hot summer days.
- Take special care not to drop the unit or strike it against hard objects. Protect from shocks during transportation.

Make it a rule to observe the following instructions.

- Do not remove the battery pack or disconnect other power supply units during recording or playback before pressing the POWER switch to OFF. If not observed, this will cause tape damage.
- When the unit is not in use, remove the battery pack.

Keep the lens and viewfinder eyepiece always clean.

- When the lens if dirty or dusty, blow it off first and then gently wipe with a soft brush or lens cleaning paper.
- The lens is likely to become moldy if left dirty.

Be careful not to damage the CCD.

- Do not keep the lens directed at extremely bright objects such as the sun or other light sources for long periods. Although the CCD is less susceptible to such burn than a tube would be, caution should be exercised when using this unit. Most importantly, the lens should be capped except while actually shooting.
- Do not direct the eyepiece of the viewfinder at the sun.

Handle the unit carefully.

- Protect the microphone from excessive shocks.
- Do not carry the unit by holding it only by the viewfinder.

VIDEO CASSETTES

Moisture condensation.

- You have observed that pouring a cold liquid into a glass will cause drops of water to form on the glass's outer surface. This same phenomenon occurs on the head drum of a VideoMovie when it is moved from a cool place to a warm place, after heating a cold room, under extremely humid conditions or in a place directly subjected to the cool air from an air conditioner.
- Moisture on the head drum can cause severe damage to the video tape, and can lead to internal damage to the VideoMovie itself.
- If moisture condensation occurs on the head drum, a condensation warning appears above the counter display and the unit enters the Stop mode, unable to function. In such a case, wait for a few hours until the indicator disappears.

Maintenance

- When the cabinet is dusty, clean by gently wiping with a soft cloth.
- Avoid the use of strong cleaning agents such as benzine or alcohol as they may damage the cabinet.
- Cleaning should be done only after the battery pack has been removed or other power units have been disconnected.

Serious malfunctioning

If malfunctioning occurs, stop using the unit immediately and consult your local JVC dealer.

General Battery Precautions

- When the RM-V50U/RM-V20U (optional) or C-P6U (provided) is not functioning even when correctly opeated, the battery is exhausted.

Replace it with a fresh battery.

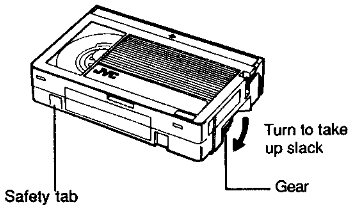
- Use only following batteries in the unit.
  - RM-V50U/RM-V20U ....AAA size.
  - C-P6U ....AA size.

Please make note of the following rules for battery use.

When misused, batteries can leak or explode.

1. Insert the batteries correctly according to the diagram inside the battery section.
2. Do not use old and new batteries together.
3. Do not use two different kinds of batteries. Although sizes may be the same, voltages may differ.
4. Do not expose batteries to excessive heat as they can leak, or explode. Do not dispose of batteries in a fire.
5. Remove batteries from the unit if it is to be stored for an extended period to avoid battery leakage which can cause malfunctions.

- The GR-303U employs only the cassettes carrying the respective VHS-C marks.
- Recording onto prerecorded tapes automatically erases the previously recorded video and audio signals.
- An inverted cassette cannot be inserted.
- Do not load and unload the cassette repeatedly without allowing the tape to run at all. This will slacken the tape and thereby damage it.
- Make certain before loading the cassette that the tape is not slack. If there is any slack, turn the gear on the cassette in the direction of the arrow to take up slack.
- The cassette is equipped with a safety tab to prevent accidental erasure. When the tab is removed, recording is impossible. If you wish to record on a cassette whose tab has been removed, use adhesive tape to reseal the slot.
- To avoid excessive exposure to dust and fingerprints, do not open the front tape cover.



Storage of cassettes

- Avoid exposing the cassettes to direct sunlight. Keep them away from heaters.
- Avoid storing the cassettes in humid or dusty places.
- Do not drop the cassettes. Do not expose them to violent vibrations or shocks.
- Do not expose the cassettes to strong magnetic fields (near a motor, transformer or magnet).
- Place the cassettes in cassette cases and position them vertically.

IN CASE OF DIFFICULTY

What may initially appear to be trouble is not always a real problem. Make sure first...

Symptoms	Check points
Power	
No power is supplied.	• Is the battery pack correctly installed? • Is the battery pack charged? • Is the power supply unit correctly connected?
Recording	
Recording is impossible.	• Check to see if the cassette safety tab in place. See page 36. • Is the control panel cover set to "REC"?
Picture colors greatly differ from actual subject colors.	• If in the manual white balance mode, check the setting of the WHITE BALANCE button.
No sound is recorded with an external microphone.	• Is the microphone's switch set to ON?
Recording does not start.	• Have you slidden the control panel to REC first?
Playback	
Tape is running, but no playback picture appears.	• Is the VIDEO/TV switch of the RF unit set to VIDEO? • Is the TV receiver set to your video channel? • If A/V connection is used, is the TV's VIDEO/TV switch set to VIDEO?
Noise bars appear in the playback picture.	• Use the manual TRACKING buttons to reduce noise bars.
Tape transport	
Tape stops during fast forward or rewind.	• Is the "M" indication visible on the LCD? If so, press the MEMORY button to cancel the memory function.
Rewinding or fast forwarding is impossible.	• Check to see if the tape has already been fully wound on one reel or the other.
Other	
Vertical white lines appear when shooting a very bright object.	• This may occur when the background contrasts very much with the object. This is normal.
Picture is blurred in the Quick Review or Retake mode.	• Is the SP/EP recording mode select switch properly set?

Note:

- The GR-303U incorporates an automatic head cleaning function which opeates each time the cassette is loaded and unloaded.

The GR-303U is a microcomputer-controlled device. External noise and interference might prevent it from functioning properly. In such cases, first disconnect its power supply unit (battery pack, AC power adapter, etc.); and then reconnect it and proceed as usual from the beginning.

SECTION 1
SERVICE CAUTIONS & DISASSEMBLY

1.1 PRECAUTION

1. Disconnect unit from power before removing or soldering components.
2. When removing a connector, pay special attention to flexible wires and wiring so as not to damage them.
3. Some resistors, shorting jumpers (0 ohm resistance), ceramic capacitors and diodes are chip parts. These chip parts cannot be reused after they are once removed. Refer to Section 1.3.
4. When removing and replacing parts, be careful not to damage or displace other parts. (Be especially careful with the video head assy and the tape transport mechanism.)
5. When removing and replacing IC's, be careful not to damage circuit patterns.

1.2 REQUIRED TEST EQUIPMENT, FIXTURES/TOOLS AND OTHERS

For proper measurement, adjustment and maintenannce, the following test equipment, fixtures/tools are strongly recommended.

1.2.1 Test equipment

1. Color video monitor
2. AC power adapter (AA-V6U or equivalent)
3. Oscilloscope (dual-trace type, more than 20 MHz)
4. Frequency counter
5. Audio tester and Audio signal generator
6. Video signal generator
7. Sweep signal generator
8. Vectorscope
9. AV output cable

- Color bar signal

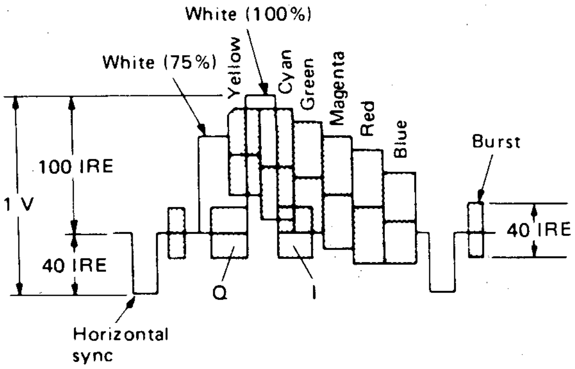

White (100%)
White (75%)
Yellow
Cyan
Green
Magenta
Red
Blue
Burst
100 IRE
1 V
40 IRE
40 IRE
Q
I
Horizontal sync

Fig. 1-2-1 Color bar signal waveform

- Color bar pattern

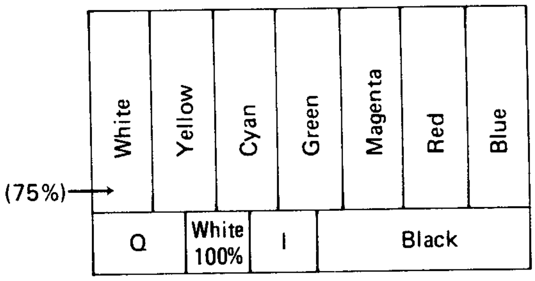

White
Yellow
Cyan
Green
Magenta
Red
Blue
(75%)
Q
White 100%
I
Black

Fig. 1-2-2 Color bar pattern

- Color sweep signal

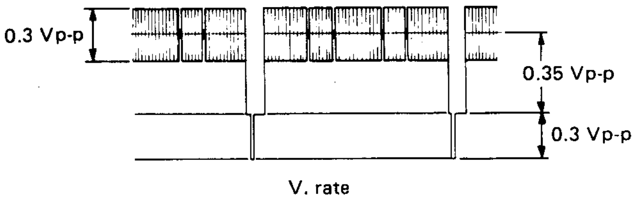
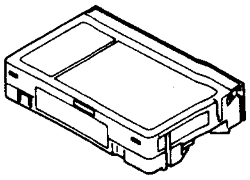
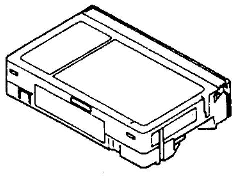
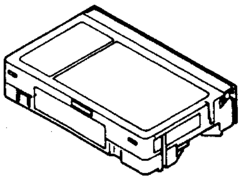
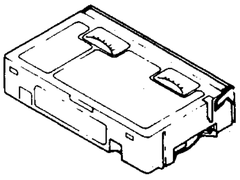
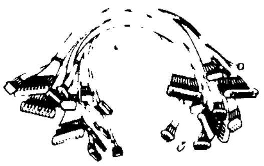
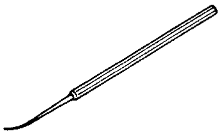
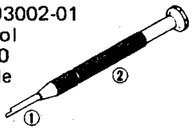
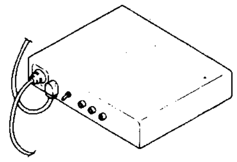
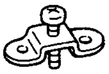
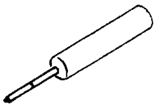
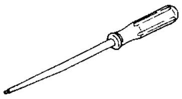
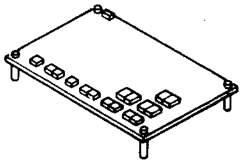
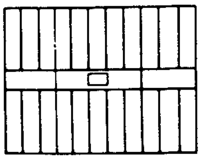
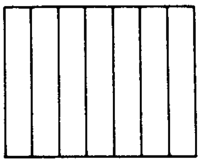
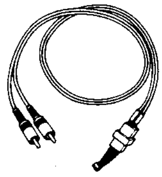
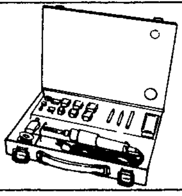
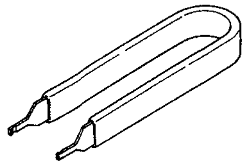

0.3 Vp-p
0.35 Vp-p
0.3 Vp-p
V. rate

Fig. 1-2-3 Color sweep signal

1.2.2 Special test equipment and tools for adjustment

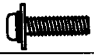
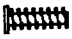
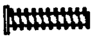
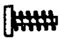
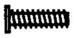
Alignment tape for SP interchangeability (MHP-C or MH-C1)	Alignment tape for EP interchangeability (MHP-LC)	Alignment tape for N. SP PB Y/C level (MHV-2C or MH-C1)	Cassette torque meter PUJ50431-2
			
Patch cords set YTU93039A	* Chip IC replacing tool PTS40844-2	A/C head positioning tool YTU93002A (incl. ① & ②)	Y/C separator PUJ25579
		① YTU93002-01 Bit tool ② PD-3.0 Handle  Orders for ① & ② can be placed separately.	
Upper drum removing jig YTU94031A	Ultramini VR adjusting driver YTU93036-2	0.35 mm adjusting driver YTU94028	EVR adjuster YTU93041A
		 (ENGINEER DA-08)	
Gray scale pattern (GS-2A) Reflection type, 11 steps, γ = 2.2	Color bar pattern (CC-2A) Reflection type, 7 colors	Cable for Y/C separator YTU93006	* SMC Replacement Tools YTU94038B
			
* Connector Extractor YTU94036A			
			

*Note: Convenient for replacing chip parts

Table 1-2-1

1.2.3 Main screws to deal with for disassembly/reassembly

For a reference of disassembling/reassembling the set, the shapes and parts numbers of main screws are shown below.

Symbol of screws	Shape	Part No.	Symbol of screws	Shape	Part No.	Symbol of screws	Shape	Part No.
Screw Ⓐ		YQM30032-1-2	Screw Ⓕ		DPSP2010Z	Screw Ⓛ		SPSH1720M
Screw Ⓑ		YQM30032-4-2	Screw Ⓖ		SPSK2004F	Screw Ⓜ		YQM30032-41
Screw Ⓒ		SSSK2004D	Screw Ⓗ		SPSP2004Z	Screw Ⓝ		YQM30032-5-2
Screw Ⓓ		YQM30032-2-2	Screw Ⓙ		YQ41343	Screw Ⓟ		SPSH1735M
Screw Ⓔ		YQM30032-29	Screw Ⓚ		SPSH1725M	Screw Ⓠ		YQM30032-6-2

Note: Symbol of encircled alphabet corresponds to that of a screw mentioned in the disassembly/reassembly procedure of the following.

1.3 SMC Replacement Tools (YTU94038A/B/C)

1.3.1 Outline

The trend in recent years toward ever more compact electronic products has brought about increased use of surface mounted components (SMC). The videomovie series has already been using these parts for several years. Their replacement is often cited as the most difficult aspect of videomovie service and a major cause of reduced service efficiency.
A special soldering tool set has been designed for use in replacing surface mounted components. It includes a range of interchangeable tips that enables application for all SMC used in the videomovie series.
The set features greatly increased work efficiency in comparison with generally marketed tools, together with easy use that does not require advanced training.
Although the set is specifically designed for the videomovie series, it is also useful for replacing general types of SMC. It is therefore highly recommended.

1.3.2 Kit description

- **Full system**

The system includes a selection of flat IC removal tips for sizes used in the videomovie. It allows increased work efficiency approaching that of the hot air unit. The set is also fully capable of general purpose soldering. Since the cost is considerably less than the hot air system, the kit is recommended for typical service stations.
The following three types are available for use according to the local power line voltage.

1. (YTU94038A)	For 100 V areas
2. (YTU94038B)	For 120 V areas
3. (YTU94038C)	For 220 V areas

Set composition

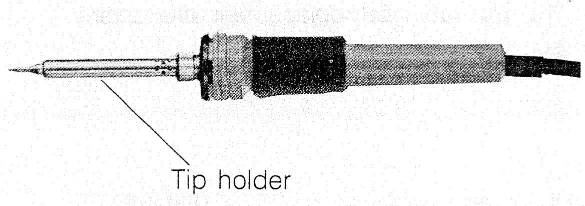
Soldering iron
IC tips
Chisel shaped tip
Pointed tip
Flux
Desoldering wire
Solder (0.3 mm)
IC removing tool
Narrow tipped tweezers

- **Part descriptions**

1. Soldering iron

YTU94038-001	For 100 V areas
YTU94038-002	For 120 V areas
YTU94038-003	For 220 V areas

2. Holder for general purpose tips
Tip holder (YTU94038-010)

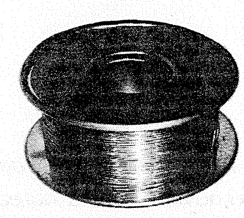


3. Desoldering wire for small parts (0.6 mm) (YTU94038-050)
   Desoldering wire is used for removing residual solder after removing the part. Thin type is used for miniature parts.
   Desoldering wire thickness greatly affects work efficiency. This type tends to absorb the soldering iron heat. With a fine tipped soldering iron, use the thinnest type available.

HAKKOWICK
DESOLDERING WIRE
Size
HAKKO
HAKKO METAL IND. LTD.
MADE IN JAPAN

4. Desoldering wire for IC use (2.0 mm) (YTU94038-051)
   (See above)

5. Solder for SMC (0.3 mm diameter) (YTU94038-052)
   Use thin rosin core solder of about 0.3 mm. For general chip parts, the 0.6 mm size is suggested. Solder composition should be 60% tin, 40% lead.

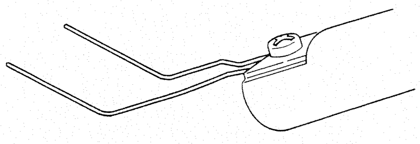


6. Electronic parts flux (YTU94038-053)
   Flux is used for improving soldering efficiency. It is expecially needed for quickly soldering ICs with many leads.
   Rosin flux is ordinarily included in electronic solder. But this may be absent or insufficient in the thinnest sizes. Additional flux is therefore applied to the circuit pattern before soldering in order to improve effectiveness. However, after soldering, use care to clean off remaining flux, since it can be oxidized when the circuit temperature increases.

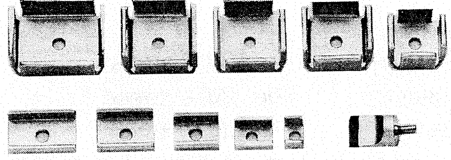
HAKKO
HAKKO

7. Narrow tipped tweezers (YTU94038-054)
   Tweezers are used when installing miniature parts.

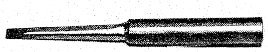
8. IC removing tool (YTU94038-055)



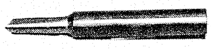
9. IC tip set (YTU94038-200)
   This is a set of only the tips for the above full system. The tips may need replacement after extensive use.



10. Chisel shaped soldering tip (YTU94038-160)

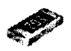
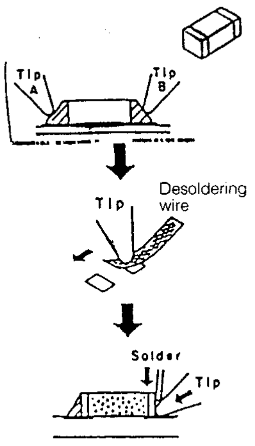
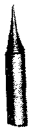
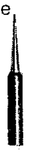
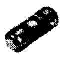
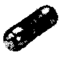
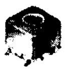
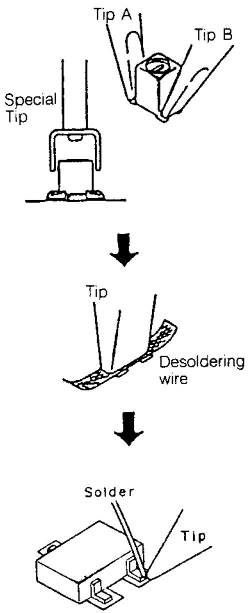
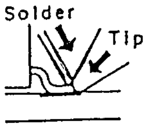
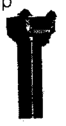
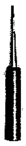
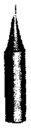
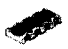
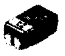
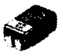
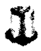
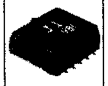
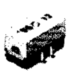


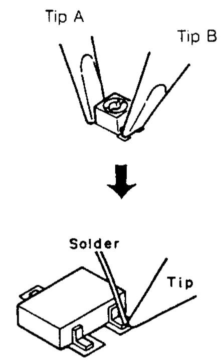
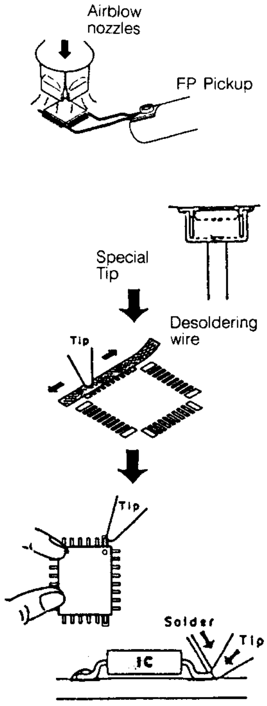
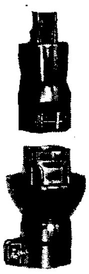
11. Pointed soldering tip (YTU94038-161)



1.4 BASIC KNOWLEDGE OF VIDEOMOVIE SMC* PARTS REPLACEMENT

Note: *For details, refer to "VIDEO SERVICE GUIDE" (VTS81001).*

Products	Appear-ance	Replacement technology	Removal method	Installation method	Soldering tip types	Cautions
Thick Film Chip Resistors			• **Use 2 soldering irons** 1. Use thin tip soldering irons. 2. Use soldering tip temperature of about 280°C. 3. Simultaneously heat both ends of the part. 4. While heating, grasp the part with the tips of the soldering irons and remove it. 5. Use desoldering wire to completely remove the old solder from the part location of the board. 6. A clean pattern for installing the new part is very important.	1. Clean the area where the new part is to be moundted (use alcohol). 2. Apply flux. 3. Set part correctly into position, prevent it from shifting. 4. Bring the soldering iron tip close to the part contact without actually touching it. Melt thin (0.3 mm) solder between the tip and part so that it flows into the part contact. 5. Check work quality with a magnifier.	Thin tip type  Small flat-blade tip type 	Some parts can be damaged by sudden heating. Preheat the part at about 100°C for several minutes before installing it. Do not touch the part body with the soldering iron. The thin (0.3 mm) solder for miniature parts does not contain adequate flux. Supplementary flux is thus needed in most cases. Set the position carefully and secure the part. A defective trimming resistor cannot be adjusted externally. Replace with an ordinary variable resistor.
Carbon Film Chip Resitors						
Metal Film Chip Resistors						
Chip Ceramic Capacitors						
Chip Triming Resistors						
Chip Inductors		 Tip A Tip B Special Tip Tip Desoldering wire Solder Tip	• **Special desoldering iron** 1. Select soldering tip according to part size. 2. Bring the tip into contact with the soldered points. 3. When the solder melts, remove the part. 4. Remove the old solder with desoldering wire. • **2 soldering irons** 1. Use small flat-blade tips. 2. Heat both ends of the part simultaneously. 3. When the solder melts, grasp and remove the part with the soldering iron tips. 4. Remove the old solder with desoldering wire.	1. Clean the area where the new part is to be mounted (use alcohol). 2. Apply flux. 3. Set part correctly into position, prevent it from shifting. 4. Use sharp soldering iron tip. Bring close to the part contact without actually touching it. Melt thin solder between the tip and part so that it flows into the part contact.  5. Check work quality with a magnifier.	Special Soldering tip  Small flat-blade tip type  Thin tip type 	Use care not to damage plastic components when soldering. Position the part carefully. This will also affect the soldering operation. Use care regarding soldering iron tip and avoid rapidly heating parts. For larger parts, use a slightly higher temperature (about 300°C). Check after installing (cold solder joints, etc.). Use care not to damage the circuit pattern, especially when removing.
Chip Resistor Networks						
Chip Tantalum Capacitors						
Chip Tantalum Electrolytic Capacitors						
Chip Aluminum Electrolytic Capacitors						
Chip Transformers						
Chip Filters						

Products	Appearance	Replacement technology	Removal method	Installation method	Soldering tip types	Cautions
Chip VRs			• **2 soldering irons** 1. Use small flat-blade tips. 2. Heat the leads of the part simultaneously. 3. When the solder melts, grasp and remove the part with the soldering iron tips. 4. Remove the old solder with desoldering wire.	1. Clean the area where the new part is to be moundted (use alcohol). 2. Apply flux. 3. Set part correctly into position, prevent it from shifting. 4. Use sharp soldering iron tip. Bring close to the part contact without actually touching it. Melt thin solder between the tip and part so that it flows into the part contact.	Thin tip type Small flat-blade tip type 	Use care not to damage the part when soldering. Check for solder joints, expecially miniature parts with small leads.
Chip Trimmer Capacitors						
Diodes						
Transistors						
IC (SOP) (Small Outline Package)		 Airblow nozzles FP Pickup Special Tip Desoldering wire Tip Tip Solder Tip IC	• **Special desoldering iron** 1. Select the tip according to the size and shape of the IC. 2. "Tin" the tip with a small amount of solder. 3. Set the tip squarely over the IC leads. 4. When the solder melts, carefully twist the iron. 5. Raise and remove the IC. • **Shaped airblower unit** 1. Select the correct nozzle. 2. Select the temperature and airblow (suggested: temp. 7, airblow 4). 3. Engage the IC removing tool. 4. Use the airblow to preheat the IC for about 5 seconds, then heat with the nozzle until the IC remover lifts the part from the board.	1. Use desoldering wire to remove the previous solder. 2. Clean the location with alcohol. 3. Apply flux. 4. Position the IC and solder two pins at opposite sides. 5. Use a sharp tipped soldering iron and carefully solder each pin. (After gaining experience, a thicker tip can be used for better work efficiency.) 6. Remove any solder bridges with desoldering wire. 7. Inspect the work with a magnifier.	Special soldering tips. Airblow nozzles 	Do not reuse removed parts. Use care to avoid solder bridges. Remove any that occurs. Remove the old IC carefully so as not to damage the circuit pattern. Because of the many pins, cleanliness of the pattern is extremely important after removing the IC. Be very precise in positioning the IC. Soldering opposite pins first holds the IC in place and makes soldering the other pins easier. It is important to inspect the work with a magnifier. ICs (especially TSOP) are easily damaged by heat. Do not touch directly with the soldering iron.
IC (SSOP) (Shrink Small Outline Package)						
IC (VSOP) (Very Small Outline Package)						
IC (QFP) (Quad Flat Package)						
IC (VQFP) (Very Small Quad Flat Package)						
IC (PLCC) (Plastic Leaded Chip Carrier)						
IC (TSOP) (Thin Small Outline Package)						

* SMC: Surface Mounted Component

1.5 DISASSEMBLY OF CAMERA SECTION

Note: *Three kinds of double-arrows in connection tables respectively show kinds of connectors/wires.*

⬌ : Board-to-Board connector
⇔ : Flat wire
↔ : Wire

1.5.1 Cassette cover

1. Remove two screws Ⓐ to detach the cassette cover.

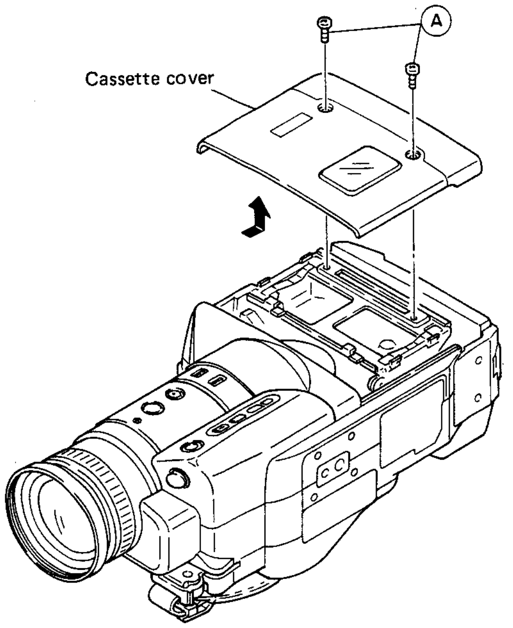


Fig. 1-5-1 Cassette cover

1.5.2 Operation unit

1. Remove two screws Ⓐ and two screws Ⓑ
2. Disconnect the connector ① to detach the operation unit.

Con-nector	No. of pins	Connection
①	16	Operation unit ⬌ $\boxed{0}\boxed{1}$ MAIN CN10

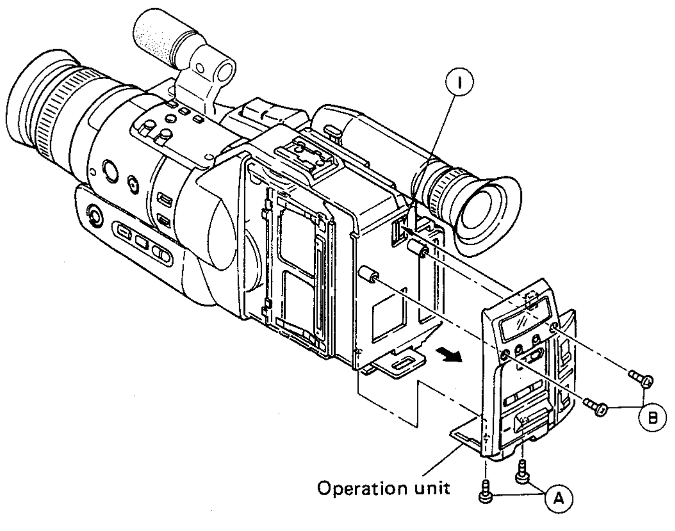


Fig. 1-5-2 Operation unit

1.5.3 Top cover

1. Remove two screws Ⓒ to detach the top cover.

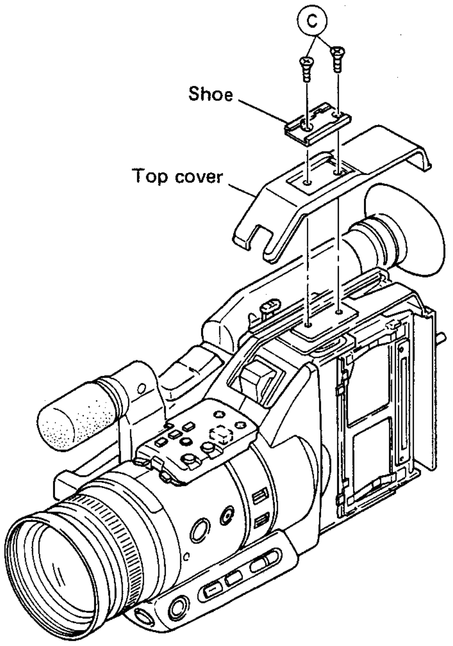


Fig. 1-5-3 Top cover

1.5.4 Front cover assy

1. Remove two screws Ⓝ.
2. Disconnect the connector ① to detach the front cover.

Con-nector	No. of pins	Connection
①	4	$\boxed{2}\boxed{7}$ T. SW CN741 ↔ $\boxed{2}\boxed{3}$ CTL CN308

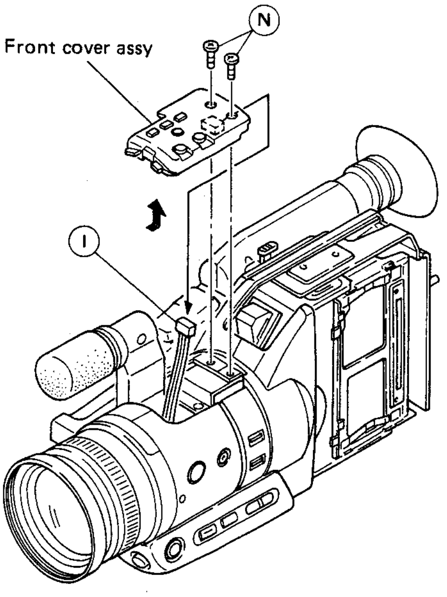


Fig. 1-5-4 Front cover assy

1.5.5 Upper case assy, Clock battery cover

1. Remove four screws Ⓐ, a screw Ⓑ and two screws Ⓓ.
2. Disconnect the connector ① to detach the upper case assy and clock battery cover.

Con-nector	No. of pins	Connection
①	7	$\boxed{2}\boxed{8}$ C. SW CN701 ⇔ $\boxed{2}\boxed{3}$ CTL CN306

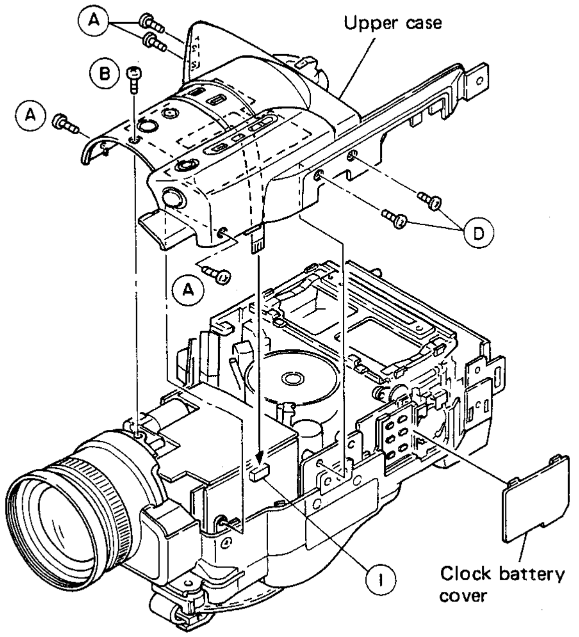


Fig. 1-5-5 Upper case assy, clock battery cover

1.5.6 Clock battery holder

1. Disconnect the connector ① to detach the clock battery holder.

Con-nector	No. of pins	Connection
①	4	$\boxed{2}\boxed{9}$ D. SW CN771 ⇔ $\boxed{2}\boxed{3}$ CTL CN307

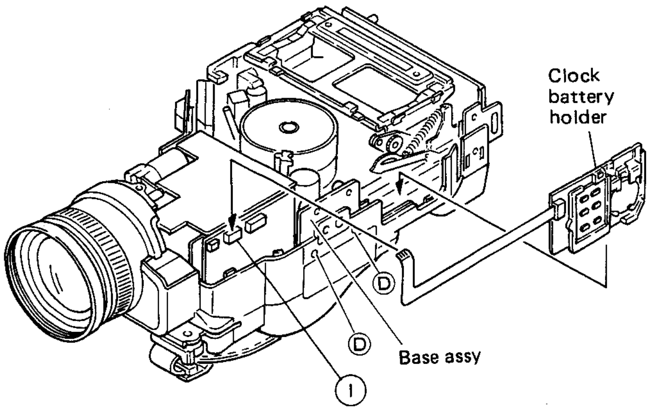


Fig. 1-5-6 Clock battery holder

Note: *Following the above work, disassemble the camera section and the deck section from each other. For this procedure, it is recommended to remove two screws Ⓓ and the base assy first in order to do the work with ease.*

1.5.7 Lower case assy

1. Remove two screws Ⓑ and a screw Ⓜ

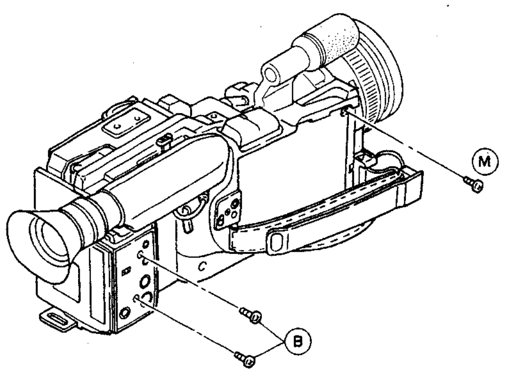


Fig. 1-5-7(A) Lower case assy - 1

2. Remove three screws Ⓔ.
3. Disconnect the connectors ①, ②, ③, ④ and ⑤ to detach the lower case assy.

Con-nector	No. of pins	Connection
①	3	Battery ↔ $\boxed{0}\boxed{3}$ JACK CN4
②	5	$\boxed{0}\boxed{2}$ A/V CN7 ↔ $\boxed{0}\boxed{6}$ MIC AMP CN1
③	5	$\boxed{2}\boxed{5}$ AF CN503 ↔ Zoom switch
④	2	$\boxed{2}\boxed{3}$ CTL CN309 ↔ $\boxed{0}\boxed{5}$ MIC JACK CN1
⑤	3	$\boxed{2}\boxed{1}$ VIDEO CN106 ↔ E. VF

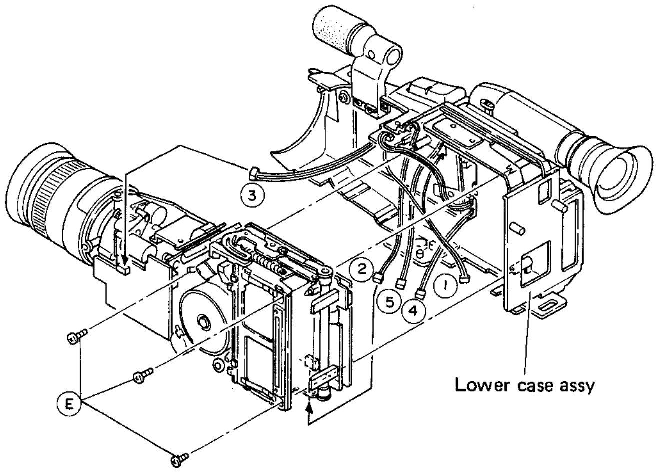


Fig. 1-5-7(B) Lower case assy - 2

Note: *To install the MIC AMP board to the lower case, refer to Fig. 1-5-7(C).*

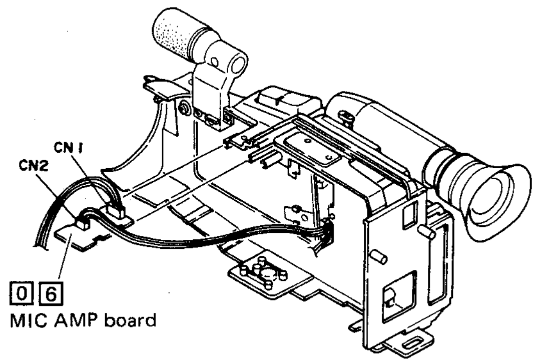


Fig. 1-5-7(C) Installing MIC AMP board

1.5.8 Separation of camera section and deck section

1. Disconnect the connectors ①, ② and ③ to separate the camera section from the deck section.

Con-nector	No. of pins	Connection
①	3	$\boxed{2}\boxed{2}$ IMAGER CN201 ↔ $\boxed{0}\boxed{3}$ JACK CN2
②	8	$\boxed{0}\boxed{1}$ MAIN CN8 ⇔ $\boxed{2}\boxed{3}$ CTL CN305
③	8	$\boxed{0}\boxed{2}$ A/V CN6 ⇔ $\boxed{2}\boxed{1}$ VIDEO CN107

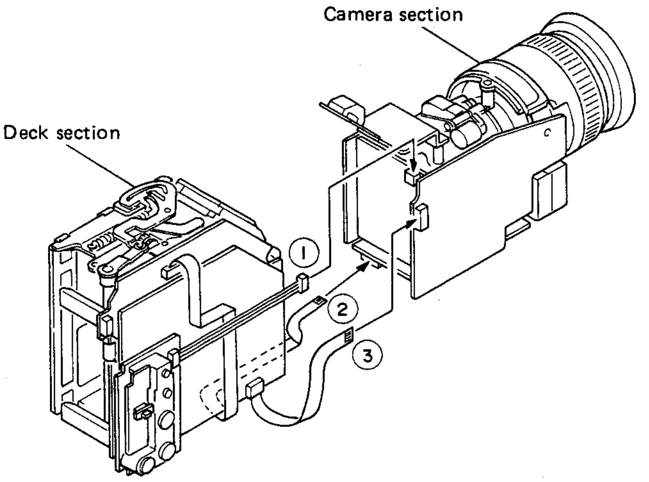

Camera section
Deck section
①
②
③

Fig. 1-5-8 Separation of camera section and deck section

1.5.9 Setup for troubleshooting and check of camera section

Set up the camera section and test instruments by connecting patch cords as shown in Fig. 1-5-9.

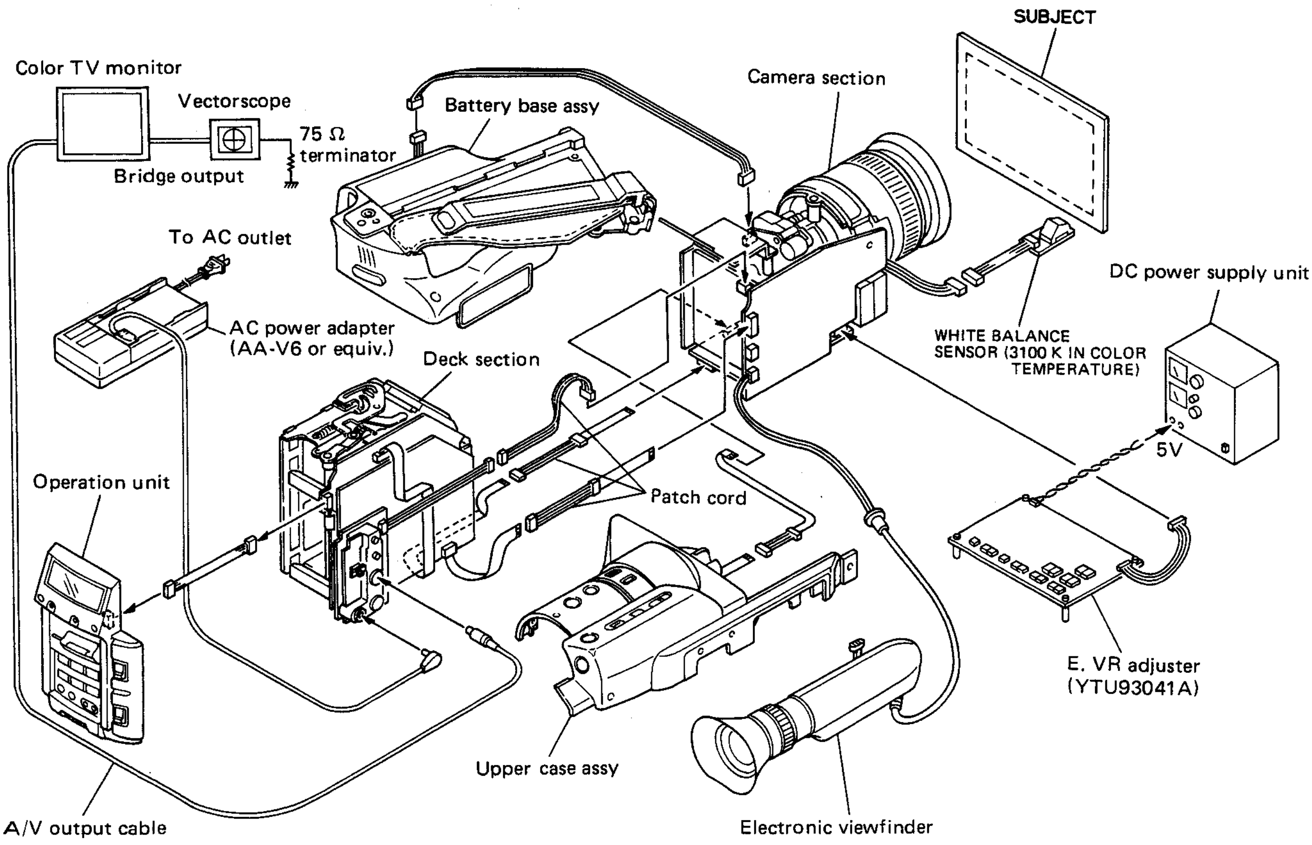

SUBJECT
Color TV monitor
Vectorscope
75 Ω terminator
Bridge output
Battery base assy
Camera section
To AC outlet
AC power adapter (AA-V6 or equiv.)
Deck section
DC power supply unit
WHITE BALANCE SENSOR (3100 K IN COLOR TEMPERATURE)
5V
Operation unit
Patch cord
E. VR adjuster (YTU93041A)
Upper case assy
A/V output cable
Electronic viewfinder

Fig. 1-5-9 Setup for camera section

1.5.10 Battery Base assy

1. Remove three screws Ⓑ.
2. Disconnect the connector ① to detach the battery base assy.

Con-nector	No. of pins	Connection
①	4	$\boxed{0}\boxed{5}$ MIC JACK ↔ Mic.

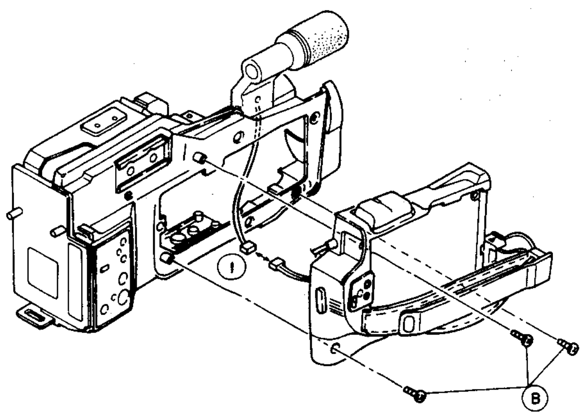


Fig. 1-5-10 Battery base assy

1.5.11 Microphone assy

1. Remove two screws Ⓠ to detach the microphone assy.

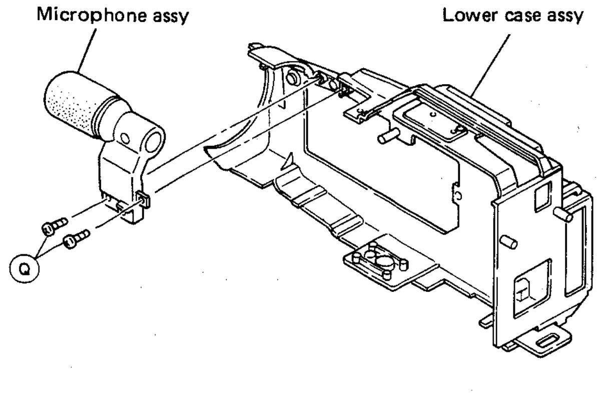


Fig. 1-5-11 Microphone assy

1.5.12 Electronic viewfinder

1. Remove three screws Ⓑ and a screw Ⓜ to detach the battery base assy. (Since the battery base assy and the main body are combined together with by the connector, do not separate them completely but do it slightly as they are connected.)
2. Disconnect the connector ① to detach the electronic viewfinder.

Con-nector	No. of pins	Connection
①	3	E. VF ↔ $\boxed{2}\boxed{1}$ VIDEO CN106

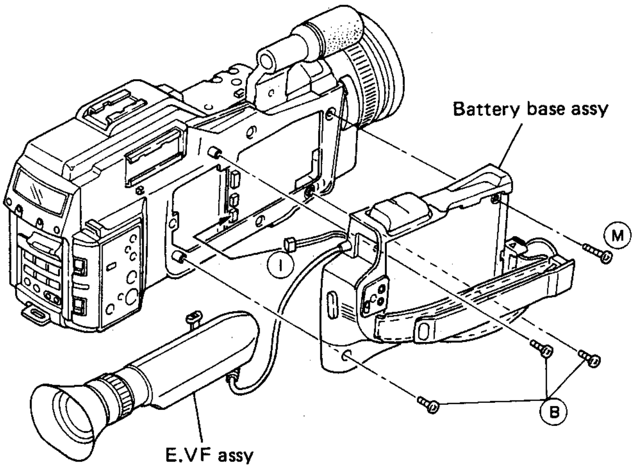


Fig. 1-5-12 Electronc viewfinder

1.5.13 VIDEO, AW and CTL boards

1. Disconnect the connectors ①, ② and ③ to detach the VIDEO, AW and CTL boards.

Con-nector	No. of pins	Connection
①	12	21 VIDEO CN101 ⬌ 22 IMAGER CN204
②	22	21 VIDEO CN102 ⬌ 22 IMAGER CN205
③	8	23 CTL CN303 ⬌ 25 AF CN502

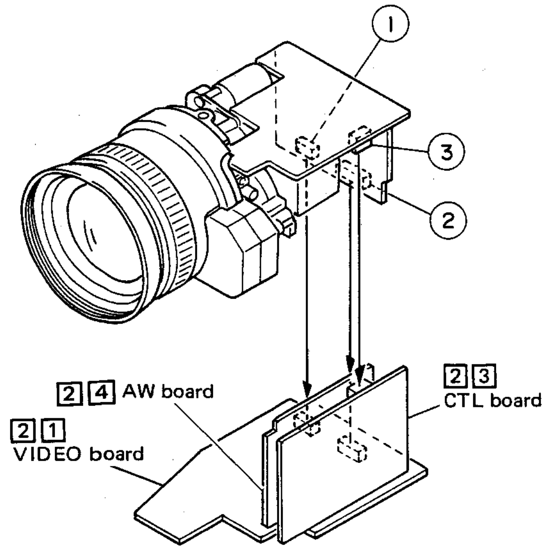

①
③
②
24 AW board
21 VIDEO board
23 CTL board

Fig. 1-5-13(A) VIDEO, AW and CTL board - 1

2. Disconnect the connectors ①, ② and ③ to detach the AW and CTL boards from the VIDEO board.

Con-nector	No. of pins	Connection
①	22	21 VIDEO CN103 ⬌ 24 AW CN402
②	22	21 VIDEO CN104 ⬌ 23 CTL CN301
③	12	21 VIDEO CN105 ⬌ 23 CTL CN302

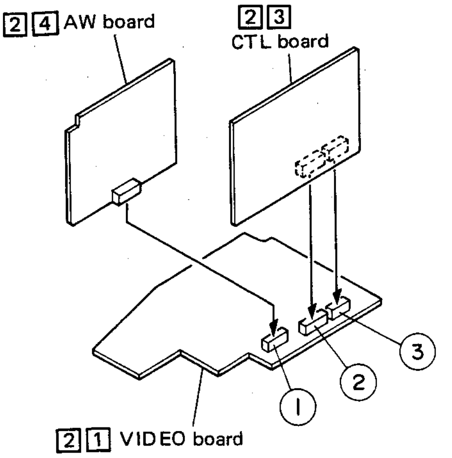

24 AW board
23 CTL board
③
②
①
21 VIDEO board

Fig. 1-5-13(B) VIDEO, AW and CTL board - 2

1.5.14 AF board

1. Disconnect the connectors ①, ②, ③, ④, ⑤, ⑥ and ⑦ to detach the AF board.

Con-nector	No. of pins	Connection
①	16	25 AF CN501 ⬌ 22 IMAGER CN203
②	4	25 AF CN509 ↔ Infinite sensor
③	8	25 AF CN504 ↔ Iris
④	4	25 AF CN508 ↔ Manual sensor
⑤	3	25 AF CN507 ↔ Zoom encoder
⑥	2	25 AF CN506 ↔ Zoom motor
⑦	4	25 AF CN505 ↔ Focus motor

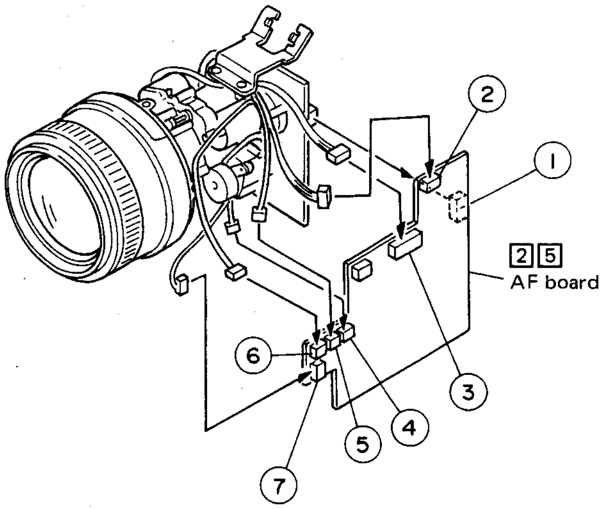

②
①
25 AF board
⑥
③
④
⑤
⑦

Fig. 1-5-14 AF board

1.5.15 Replacement of image sensor

Con-nector	No. of pins	Connection
①	10	22 IMAGER CN202 ↔ DC/DC converter

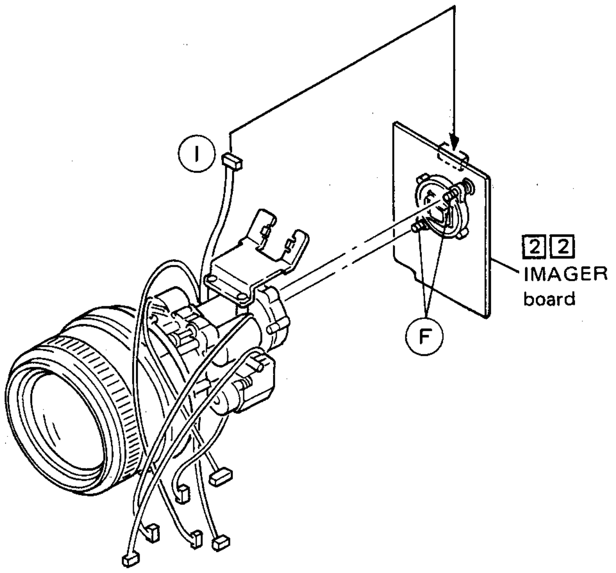

①
22 IMAGER board
F

Fig. 1-5-15(A) Removing of image sensor - 1

1. Disassembly of image sensor from optical block

1) Remove two screws Ⓕ. (Refer to Fig. 1-5-15(A).)
2) Disconnect the connector Ⓘ to detach the IMAGER board. (Refer to Fig. 1-5-15(A).)
3) Remove three screws Ⓖ and separate the optical filter holder, optical filter and spacer rubber. (Refer to Fig. 1-5-15(B).)
4) Unsolder the CCD image sensor and remove two screws Ⓗ, then take off the CCD image sensor. (Refer to Fig. 1-5-15(C).)

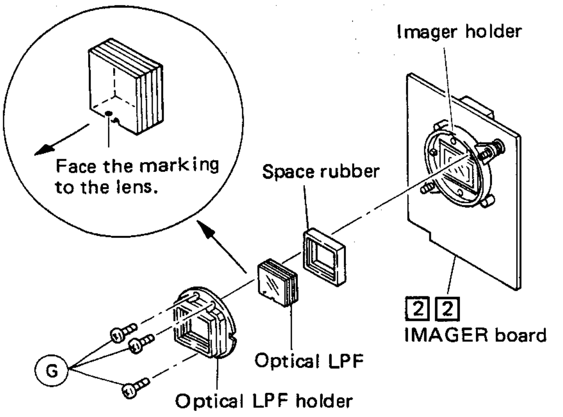

Imager holder
Face the marking to the lens.
Space rubber
22 IMAGER board
Optical LPF
G
Optical LPF holder

Fig. 1-5-15(B) Removing of image sensor - 2

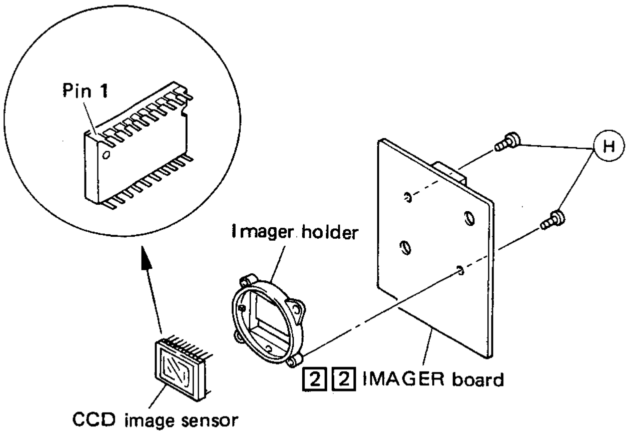

Pin 1
H
Imager holder
22 IMAGER board
CCD image sensor

Fig. 1-5-15(C) Removing of image sensor - 3

2. Installing a new image sensor

1) After removing the protection seal from a new CCD image sensor, install it on the IMAGER board.
   At that time, make sure to set it so that the marking on the side of pin 1 is positioned on the right upper as viewed in the Fig. 1-5-15(C).
2) After the CCD image sensor is set on the IMAGER board, secure it by soldering. Be careful not to apply excessive heat to the sensor or the board.
3) Next, set the spacer rubber, optical filter (to face the marking to the lens), optical filter holder one after another and secure them with three screws Ⓖ.
4) Install the IMAGER board together with the imager holder to the optical block, and temporarily fix it with screws Ⓕ lightly so it can be moved.
5) Install the AF, AW, CTL and VIDEO boards. Picking up an object (test pattern) in the macrofocus, adjust setting position of the IMAGER board so that no vignetting is observed at any corner of the image. Next, make sure of horizontality of the image by eyes. If it is confirmed that the image is kept nearly horizontally by fine adjustment, tighten two screws Ⓕ.
6) After all of the above works for the replacement, perform checkup and adjustment of the following.
   - 3.2 No. 3 V. SUB adjustment
   - 3.2 No. 4 Reset bias adjustment
   - 3.4 Auto focus adjustment

1.5.16 CRT for electronic viewfinder

For disassembling the electronic viewfinder, refer to the exploded view diagram of the electronic viewfinder [M5].

1. Connection of CRT connector
Connect the CRT connector by fitting its notch to the CRT's marking.

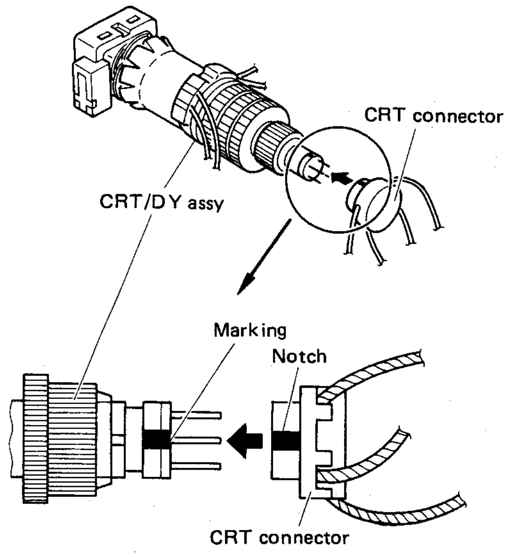

CRT connector
CRT/DY assy
Marking
Notch
CRT connector

Fig. 1-5-16(A)

2. Connection with high voltage connector
Securely perform the connection since the connector and the connected section are loaded with high voltage in operation.
The high voltage cover is an important piece to shut out the high voltage section from other parts, therefore, used one must be discarded and be replaced with a new high voltage cover.

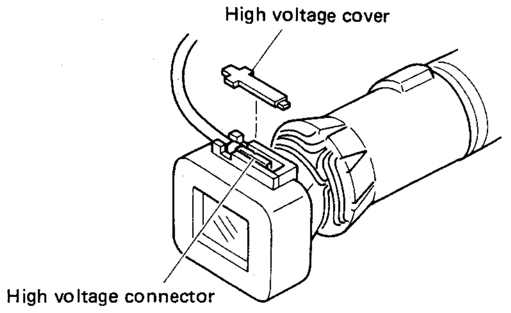

High voltage cover
High voltage connector

Fig. 1-5-16(B)

1.6 DISASSEMBLY OF DECK SECTION

Note: *Three kinds of double-arrows in connection tables respectively indicate kinds of connectors/wires.*

⬌ : Board-to-Board connector
⇔ : Flat wire
↔ : Wire

1.6.1 Setup for troubleshooting and check of deck section

Separate the deck section from the camera section according to Section 1.5.8, set up the deck section and test instruments as shown in the figure for the purpose of checkup and adjustment of the deck section.

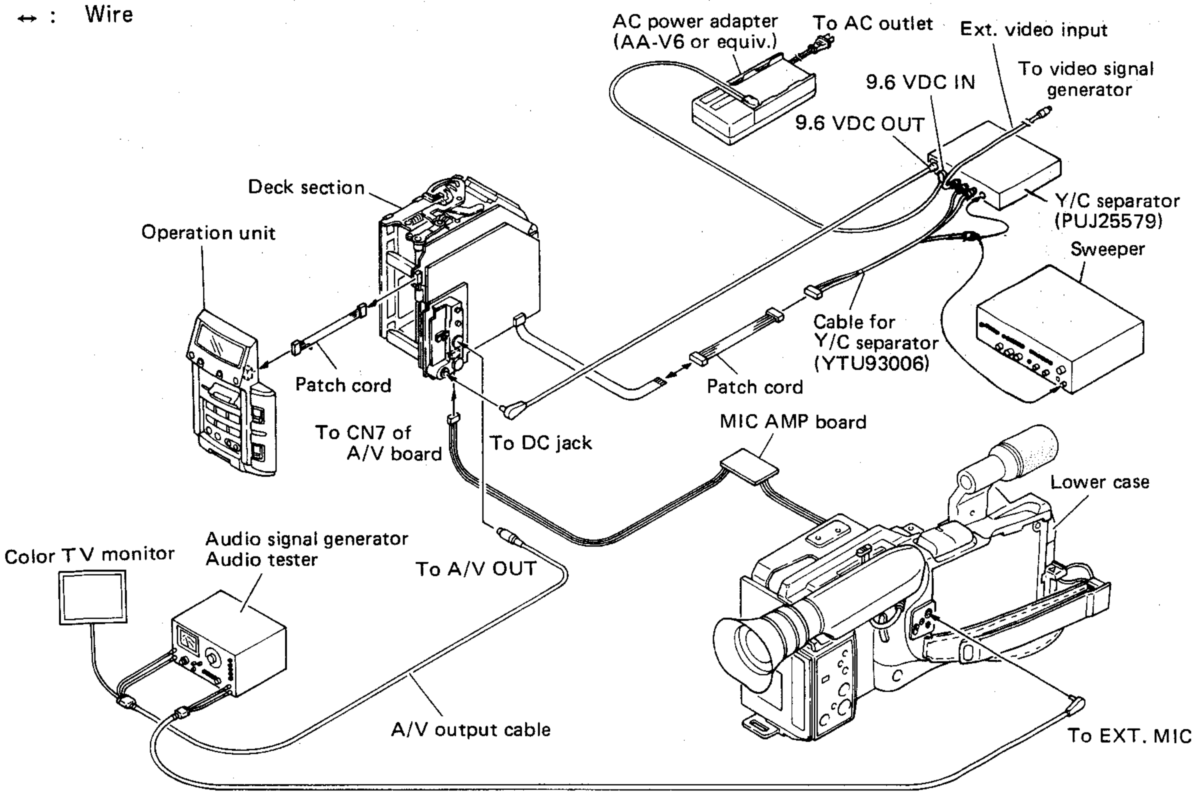

AC power adapter
(AA-V6 or equiv.)
To AC outlet
Ext. video input
To video signal generator
9.6 VDC IN
9.6 VDC OUT
Y/C separator
(PUJ25579)
Sweeper
Deck section
Operation unit
Cable for
Y/C separator
(YTU93006)
Patch cord
Patch cord
MIC AMP board
To CN7 of
A/V board
To DC jack
Lower case
Audio signal generator
Audio tester
Color TV monitor
To A/V OUT
A/V output cable
To EXT. MIC

Fig. 1-6-1 Setup of deck section

1.6.2 JACK and SW boards

1. Disconnect the connectors ① and ② to detach the JACK board.
2. Disconnect the connector ③ to detach the SW board.

Con-nector	No. of pins	Connection
①	22	03 JACK CN1 ⬌ 02 A/V CN4
②	4	03 JACK CN3 ↔ 01 MAIN CN15
③	6	04 SW CN11 ⬌ 03 JACK CN5

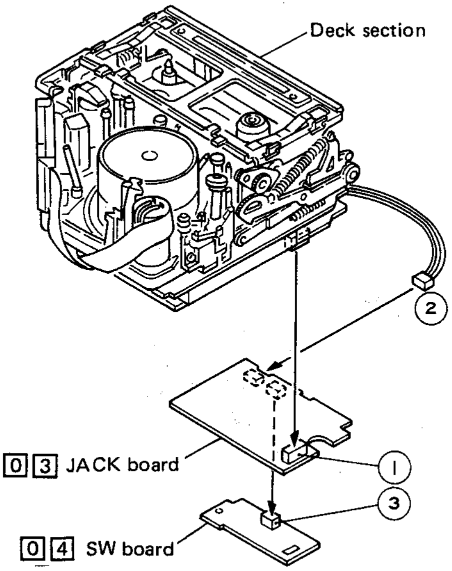

Deck section
②
03 JACK board
①
③
04 SW board

Fig. 1-6-2 JACK and SW boards

1.6.3 A/V board

1. Disconnect the connectors ①, ②, ③ and ④ to detach the A/V board.

Note: *Disconnect the connector ④ with meticulous care since it is very weak in the soldered part.*

Con-nector	No. of pins	Connection
①	5	02 A/V CN2 ↔ A/C head
②	8	02 A/V CN1 ⇔ Pre-rec amp.
③	30	02 A/V CN3 ⬌ 01 MAIN CN9
④	6	02 A/V CN5 ⬌ 01 MAIN CN14

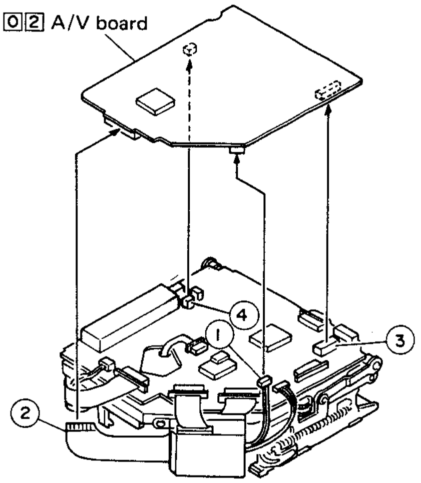

02 A/V board
④
①
③
②

Fig. 1-6-3 A/V board

1.6.4 MAIN board

1. Remove a screw Ⓙ and a screw Ⓚ.
2. Disconnect the connectors ①, ②, ③, ④, ⑤, ⑥, ⑦ and ⑧ to detach the MAIN board.

Con-nector	No. of pins	Connection
①	3	01 MAIN CN4 ↔ Mode control motor
②	15	01 MAIN CN3 ⇔ Drum motor
③	13	01 MAIN CN2 ⇔ Pre-rec amp.
④	15	01 MAIN CN1 ⇔ Capstan motor
⑤	6	01 MAIN CN11 ↔ CTL head
⑥	8	01 MAIN CN7 ⇔ Sensor
⑦	3	01 MAIN CN6 ↔ End sensor
⑧	3	01 MAIN CN12 ⇔ F.E. head

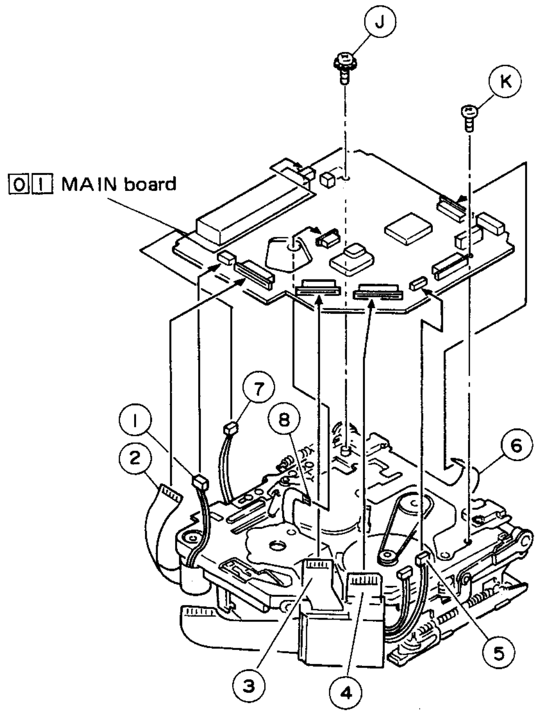


Fig. 1-6-4 MAIN board

1.6.5 PRE REC AMP board

1. Remove a screw Ⓛ.
2. Disconnect the connector ① and disengage pawls to detach the PRE REC AMP board.

Con-nector	No. of pins	Connection
①	8	PRE REC amp. ⇔ Upper drum

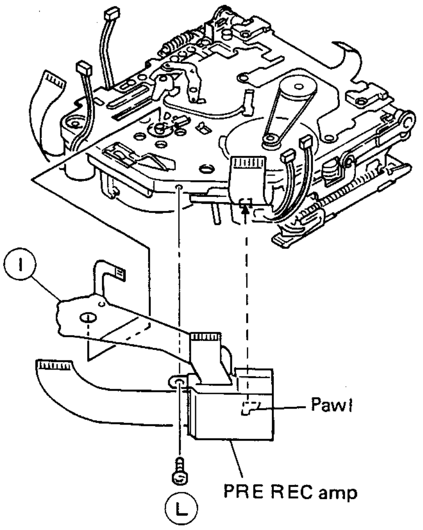


Fig. 1-6-5 PRE REC AMP board

1.6.6 SENSOR board

1. Remove four screws Ⓚ.
2. Disconnect the connector ① to detach the SENSOR board.

Con-nector	No. of pins	Connection
①	3	Sensor ⇔ CAM SW

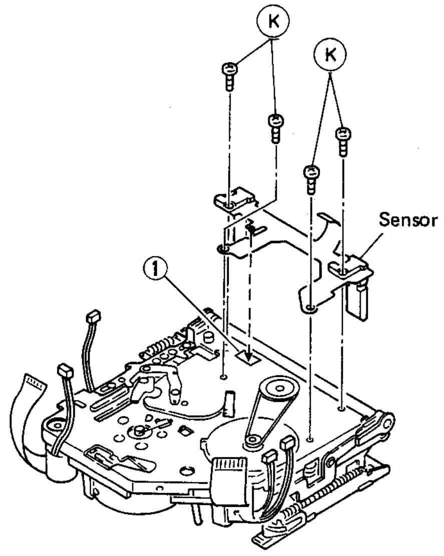


Fig. 1-6-6 SENSOR board

1.6.7 Cassette housing

1. Move the lock plate as indicated by the arrow ⓐ to hold the cassette housing lifted up.
2. Remove two screws Ⓚ.
3. Open the both arms of the cassette housing in the direction of the arrow ⓑ and detach it from the guide rail of the main deck.

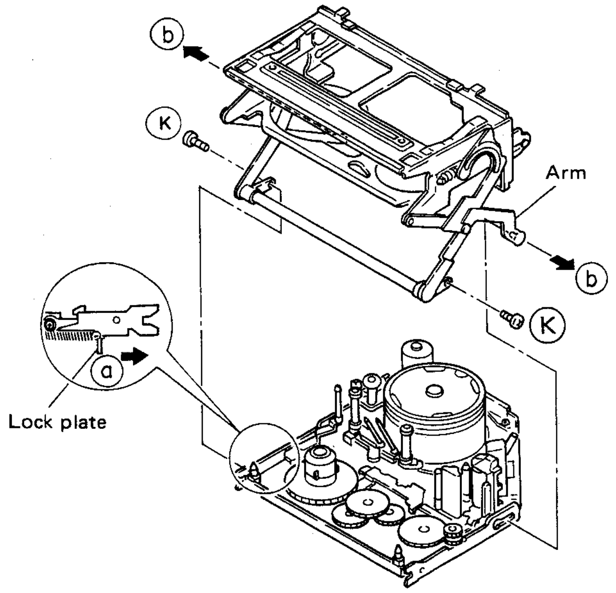


Fig. 1-6-7 Cassette housing

1.6.8 To take tape out of the cassette

Disconnect the set from the power first, and take off the external covers according to sections 1.5.1 to 1.5.6 to research the cause of the trouble and the place where it occurs.

1. Tape trouble before/without loading
1) Move the lock plate as indicated by the arrow ⓐ and lift the cassette housing upward by hand.

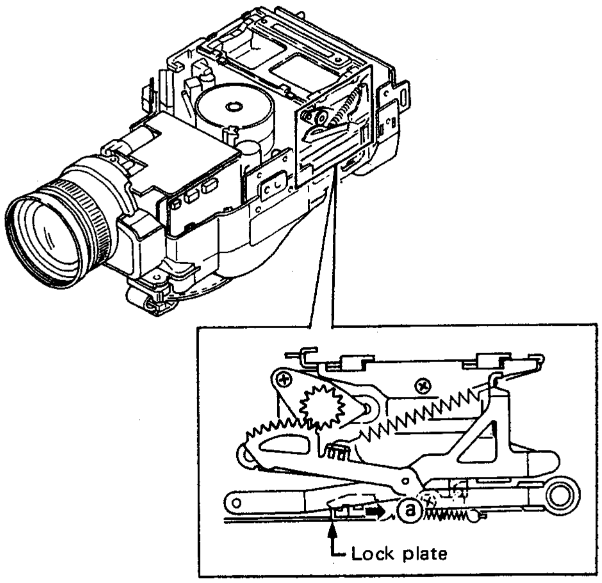


Fig. 1-6-8 (A) To take tape out of cassette - 1

2. Tape trouble in/after full-loading operation
1) Remove the wires of the mode control motor as shown in the magnified illustration Ⓐ, and connect jumping wires to the respective ends of them.

   Note: ***This connection is for protection of the mecha-con CPU.***
2) Holding the cassette housing by hand, connect the jumping wires to a UM3 ("AA") battery and make the mechanism perform the unloading operation unit it comes in the eject mode.

   Note: ***If the mechanism comes into the unloading mode without holding down the cassette, it results in tape damage.***
3) In this condition, turn the take-up gear with a screwdriver, etc. in the direction of the arrow ⓐ as shown in the magnified illustration Ⓑ to take up the tape. After confirming whether the tape is damaged or not, stop pressing the cassette housing by hand.

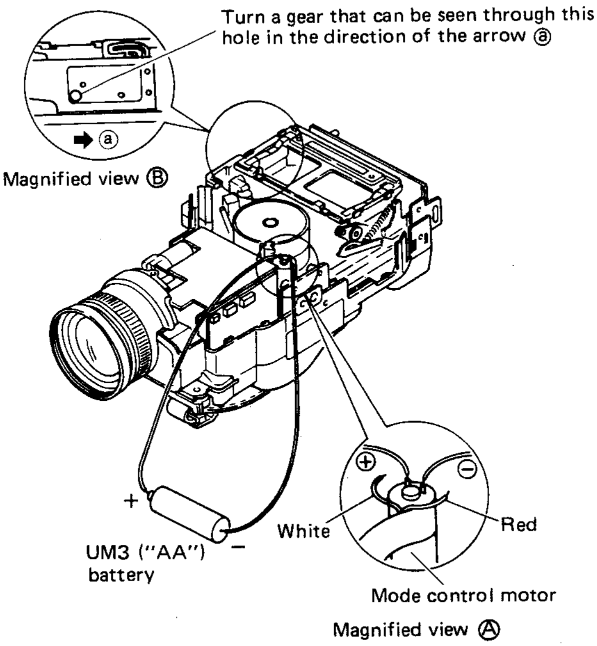

Turn a gear that can be seen through this hole in the direction of the arrow ⓐ

Fig. 1-6-8 (B) To take tape ouf of cassette - 2

1.6.9 Upper drum replacement

Note: *Be very careful not to touch any head of a new upper drum as well as not to damage the drum.*

1. Unsolder at 10 points (shown by arrows in the figure) near the center of the upper drum board.

   Note: *If solder is not completely removed, it may cause damage of the head pins when the upper drum is removed.*

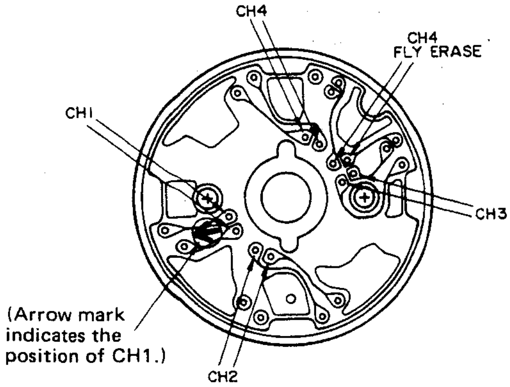


Fig. 1-6-9(A) Upper drum replacement (1)

2. Remove two screws.

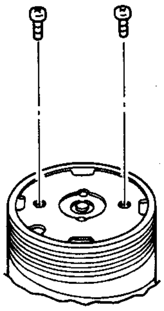


Fig. 1-6-9(B) Upper drum replacement (2)

3. For removing the upper drum, set the upper drum removal tool (YTU94031A) with two screws which were once removed in the above step 2, and tighten the center screw to detach the upper drum.

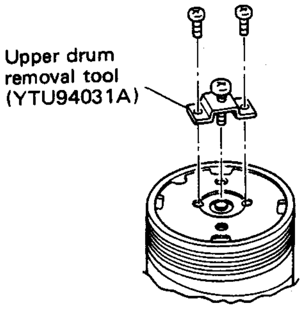


Fig. 1-6-9(C) Upper drum replacement (3)

4. Before installing a new upper drum, insert a soldering iron into the hole of the upper drum and heat it for about 3 to 5 minutes to expand it.

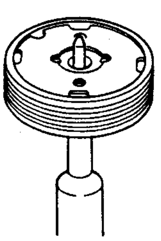


Fig. 1-6-9(D) Upper drum replacement (4)

5. For assembling the new upper drum and the lower drum, set the upper drum so that its hole A and the hole B of the lower drum are positioned at the opposite angle (180°).

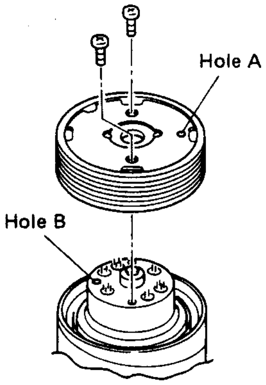


Fig. 1-6-9(E) Upper drum replacement (5)

6. Temporarily fix the upper drum with the two screws first, and after the upper drum gets cold, thenalternately tighten the screws little by little.
7. After the replacement finishes, proceed to the adjustment and checkup of the following sections.
   § 2.2 SERVO & INTERCHANGEABILITY
   § 2.3 Y (LUMINANCE) CIRCUIT
   § 2.4 COLOR SIGNAL CIRCUIT
   § 2.5 AUDIO CIRCUIT

1.6.10 Checkup and adjustment of mechanism phase

1. Middle pole cam gear, control cam gear

1) Position the middle pole cam gear so that its hole and the hole of the main deck coincide with each other.

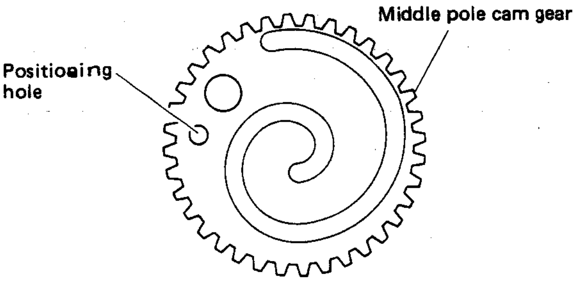

Middle pole cam gear
Positioning hole

Fig. 1-6-10(A) Middle pole cam gear

2) Position the control cam gear so that its hole and the hole of the main deck coincide with each other. At the same time, confirm that the holes of the back of the main deck and of the link coincide with each other, too.

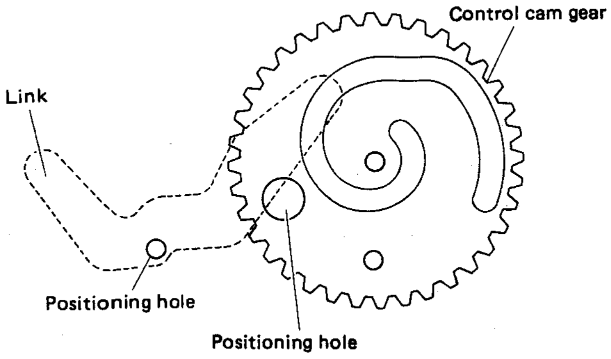

Control cam gear
Link
Positioning hole
Positioning hole

Fig. 1-6-10(B) Control cam gear

2. Encoder gear (1)

Engage the encoder gear (1) with the control cam gear so that the marking of the encoder cam gear (1) is positioned in the line between the both axes of the encoder gear (1) and the control cam gear.

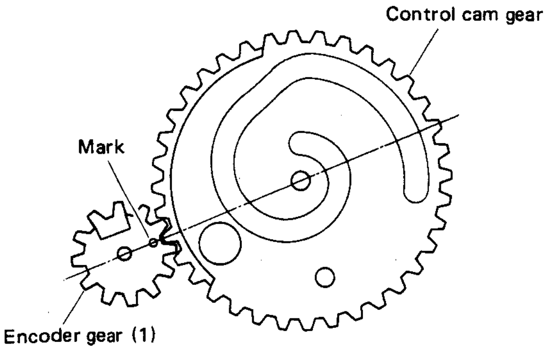

Control cam gear
Mark
Encoder gear (1)

Fig. 1-6-10(C) Encoder gear (1)

3. Loading ring assy, supply middle gear

Engage the supply middle gear with the loading ring assy so that two teeth of the supply middle gear and the internal first two teeth of the loading ring assy are gearing with each other.

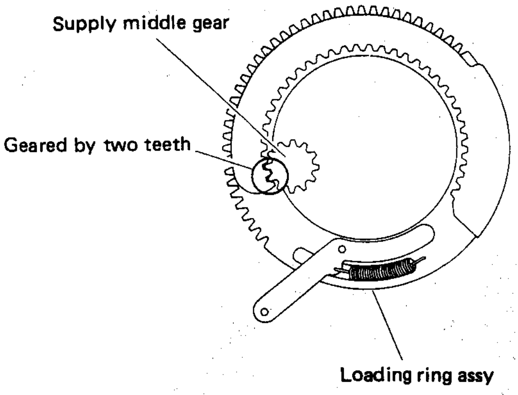

Supply middle gear
Geared by two teeth
Loading ring assy

Fig. 1-6-10(D) Loading ring assy, supply middle gear

4. Supply ring gear

Engage the supply ring gear so that its hole coincide with that of the loading ring assy.

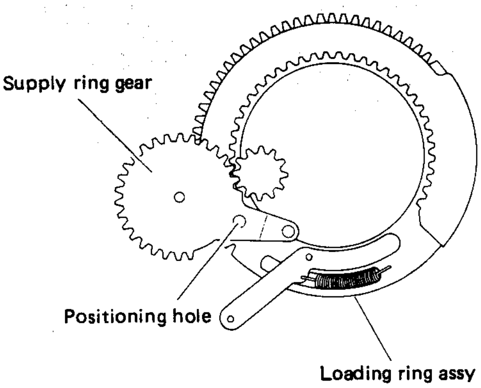

Supply ring gear
Positioning hole
Loading ring assy

Fig. 1-6-10(E) Supply ring gear

5. Cam switch assy

Adjust the cam switch assy so that the irregularly toothed portion of the gear is positioned to coincide with the rectangle hole Ⓐ.

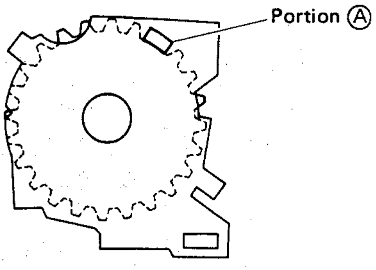


Fig. 1-6-10(F) Cam switch assy

1.7 INSPECTION AND MAINTENANCE

Since this model is equipped with rotary parts and other parts which may wear as time passes, it is important to clean the tape transport system and rotary parts as well as oiling and greasing rotary parts.

Besides such the maintenance, periodic replacement of worn and consumable parts is required.

Note: Encircled numeral(s) corresponds to the item number shown in Table 1-7-1.

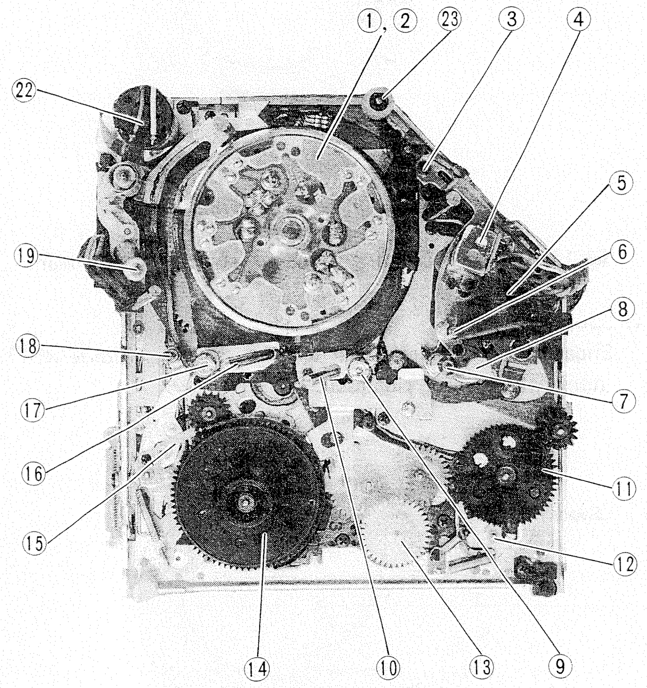


Fig. 1-7-1 Location of main mechanism parts (Top view)

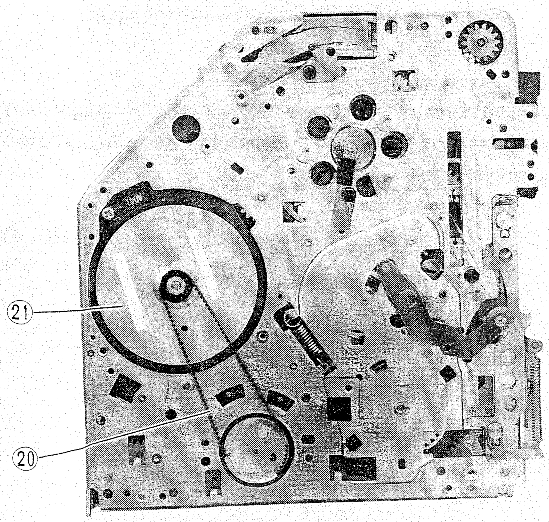


Fig. 1-7-2 Location of main mechanism parts (Bottom view)

1.7.1 Standard maintenance/inspection schedule of main components

Table 1-7-1 indicates the standard servicing period by component and kind of servicing. In practice, however, the indicated periods will widely vary according to environmental and using conditions. Nunfulfilment of the maintenance work not only shortens the standard period sharply but also influences other components badly.

Also be aware that rubber parts may possibly deform and age as time passes even when the set is not used.

1.7.2 Remarks

1. Cleaning

1) For cleaning of the upper drum (particularly video heads), use fine-woven cotton cloth or Kimwipe which alcohol soaks through. Regarding cleaning manner, do not move the cloth but turn the upper drum counterclockwise.

   Note: *Make sure not to move the cloth in the vertical direction to the video head, since it cause damage of the video heads.*

2) For cleaning of parts of the tape transport system except the upper drum, use fine-woven cotton cloth or cotton swab soaked alcohol.

3) After cleaning, confirm that the cleaned parts are completely dry before loading the deck with cassette tape.

2. Applying oil and grease

1) Periodical oiling and greasing are not required but should be done to new parts when replacing. If oil and grease on the parts of the other party are aged and dirty, wipe them and apply new oil or grease.

2) For parts and points to apply oil and grease, refer to the exploded view of the mechanism assembly (M3).
   Table 1-7-2 specifies oil and grease to be used.

3) When oiling, clean the objective parts with alcohol first and apply one or two drop(s) of oil. Too much oiling causes rotary parts to slip because of oil leakage.

Classification	Name	Part No.	Symbol in drawing
Grease	Moriton Grease No.1	MOS2-C	AA
Oil	Cosmo Hydro HV100	YTU94027	BB

Table 1-7-2 Specific oil and grease to be used

3. Checkup

After replacement of the supply reel disk and tension band, make sure to inspect and adjust back tension according to the adjustment procedure of the deck section.

4. Replacement

Replacement parts which are supplied as assembly parts are indicated by "a" in the "Assy" column of Table 1-7-1.

For respective parts numbers, refer to the parts list of the mechanism assembly.

System	Symbol No.	Parts Name	Assy	Periodic servicing schedule (operation hours)								
				250	500	750	1000	1250	1500	1750	2000	3000
Tape transport system	19	Impedance roller		★	★	★	★	★	★	★	★	★
	16	Supply slant pole	a									
	17	Supply guide roller	a									
	18	Tension pole	a									
	7	Middle pole	a									
	6	Take-up guide pole A	a									
	3	Take-up guide pole B	a									
	9	Take-up guide roller	a									
	10	Take-up slant pole	a									
	8	Capstan	a									
	2	Lower drum	a									
	1	Upper drum	a	★	★	☆	●	★	★	☆	●	●
	4	A/C head	a	★	★	★	★	★	★	★	★	●
	5	Pinch roller	a	★	★	★	★	★	★	★	★	●
	23	Head cleaner	a	○	○	○	●	○	○	○	●	●
Drive system	21	Capstan motor	a								●	
	20	Belt					○				●	○
	22	Mode control motor										●
	11	Take-up clutch	a	△	△	△	▲	△	△	△	▲	▲
	14	Supply reel disk	a	△	△	△	▲	△	△	△	▲	▲
	13	Center pulley	a				○				○	○
	12	Search brake lever		★	☆	★	☆	★	☆	★	☆	☆
Other	15	Tension band	a				○				○	○

★ : Cleaning
☆ : Cleaning (or Replacement if necessary)
△ : Lubrication
a : Will be provided as assembly parts for replacement

▲ : Lubrication (or Replacement if necessary)
● : Replacement
○ : Inspection or Replacement if required

Table 1-7-1 Maintenance schedule

SECTION 2
DECK SECTION ADJUSTMENT

2.1 PREPARATION

2.1.1 Precautions

In most cases the deck section is in need of electrical adjustment, it results from replacement of worn mechanical parts or video heads.

In the event of malfunction with electrical circuits, troubleshooting with the aid of proper test instruments must be done first, and then commence necessary repair, replacement and adjustment, etc.

At field servicing without a complete range of test instruments, avoid unnecessary disturbance of the internal control settings. For satisfactory repair and adjustment, send back the unit to the factory or the nearest authorized service center.

If adjustment of the deck section is necessary, pay the most careful attention to the following.

1. **When adjusting the deck section in the connection shown in Fig. 2-1-1, the switching point will appear on the screen at self-recording and playback. This is reson why there is no frame pulse input from the camera section and the servo phase is not locked, and not due to any trouble.**
2. In case of wiring to chip test points for measurement and observation, use IC clips to avoid any stress.
3. For adjustment of the Y/C and AUDIO circuits equipped with trimming resistors, replace them with specified V. resistors beforehand.
   For operating the MAIN board as it is removed from the mechanism deck, shortcircuit pin 13 and pin 14 of CN5 of the MAIN board.
4. To start recording in the REC Pause mode, move the slide switch toward the PLAY side (as illustrated in the magnified view ⓐ in Fig. 2-1-1) and then press the PLAY button.

2.1.2 Standard connections

For electrical adjustment of the deck section, disassemble the deck section from the main body referring to section 1, "Service Cautions and Disassembly", and connect it with test instruments as shown in Fig. 2-1-1.

Con-nector	No. of Pin	Connection
①	16	01 MAIN CN10 ↔ OPERATION UNIT
②	8	02 A/V CN6 ↔ Y/C SEPARATOR

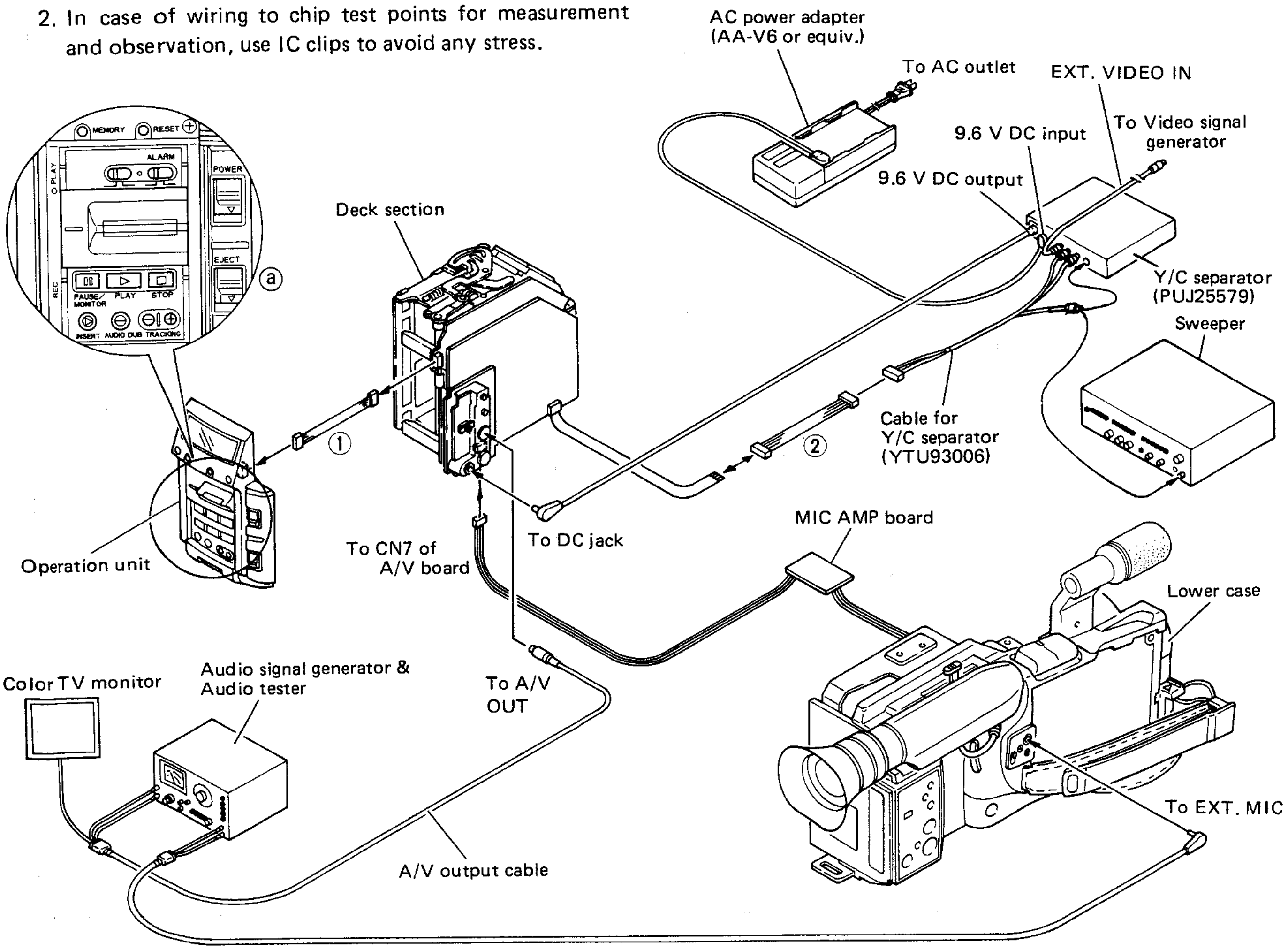

AC power adapter
(AA-V6 or equiv.)
To AC outlet
EXT. VIDEO IN
9.6 V DC input
To Video signal generator
9.6 V DC output
Y/C separator
(PUJ25579)
Sweeper
Deck section
MEMORY
RESET
ALARM
PLAY
POWER
EJECT
REC
PAUSE/MONITOR
PLAY
STOP
INSERT
AUDIO DUB
TRACKING
ⓐ
①
②
Cable for
Y/C separator
(YTU93006)
MIC AMP board
Operation unit
To CN7 of
A/V board
To DC jack
Lower case
Color TV monitor
Audio signal generator &
Audio tester
To A/V
OUT
To EXT. MIC
A/V output cable

Fig. 2-1-1 Setup for inspection and adjustment of deck section

2.2 SERVO & INTERCHANGEABILITY

Note: • *'Manual tracking' in the 'Mode' column is operated by simultaneously pressing of the tracking + and – buttons. To shift the mode to auto tracking, simultaneously press the tracking + and – buttons again.*

• *This adjustment must be performed after replacement of the upper drum ass'y or/and the lower drum ass'y.*

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
1	Back tension	• REC	• Cassette torque meter	• Cassette torque meter	–	1) Set a cassette torque meter onto the deck in the REC mode, and confirm that the back tension is within 15–22 g-cm. 2) If result of the step 1) is unsatisfactory, replace the tension band. 3) If there is a large difference in the values measured by the cassette torque meter, replace the supply reel disk.

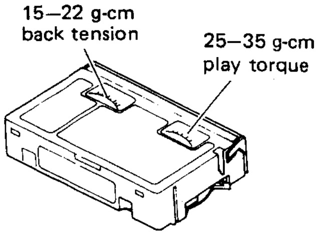


Fig. 2-2-1 Cassette torque meter

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
2	Tape pattern	•PB	•Manual tracking •Alignment tape SP stairstep (MHP-C or MH-C1)	•CN1 pin 4 (PB FM) •CN1 pin 8 (V. FF) (Ext.trigger) [0] [1] MAIN	•SUP & TU guide roller	1) Observe waveform at pin 4 of CN1 with external trigger (–) from pin 8 of CN1. 2) Play the SP stairstep signal of the alignment tape and adjust the Tracking CTL to maximize the FM waveform. 3) If the observed FM waveform is not flat, adjust the height of the supply or/and take-up guide rollers with a screwdriver (–) to get a flat waveform. **Note:** ***Slowly turn the guide roller to prevent the tape and DRUM from damage.*** 4) While varying the Tracking CTL for maximum to minimum FM level, confirm FM waveform is always flat. If there is falling or rising portions, stop turning the Tracking CTL and perform fine adjustment of supply or take-up guide roller height so that waveform is as flat as possible. Repeat step 4) several times. 5) Set for stop mode and then for playback mode again, since the height of guide rollers may move during adjustment. Confirm, when varying the Tracking CTL, FM waveform variation is always flat.
			•Alignment tape EP stairstep (MHP-LC) •REC/PB SP/EP			6) Play the EP stairstep signal of the alignment tape and adjust the Tracking CTL to maximize the FM waveform. 7) Confirm, FM waveform variation is always flat. If necessary, repeat step 3). 8) Record the signal and play it back both in the SP and EP modes, and confirm that the FM waveform is flat in the both modes. 9) Through the above steps, make sure of no wrinkling/damage in the tape around the impedance roller and take-up guide pole in Loading/Unloading, Search Rewind, and at mode change from Search Rewind to Playback. If tape wrinkling or damage occurs around the take-up guide pole, adjust the angle (slant) of the A/C head to the tape so that the tape normally runs along the lower flange of the guide pole.

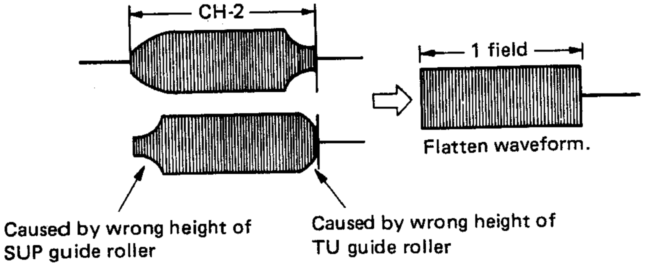

CH-2
1 field
Flatten waveform.
Caused by wrong height of SUP guide roller
Caused by wrong height of TU guide roller

Fig. 2-2-2 FM waveform

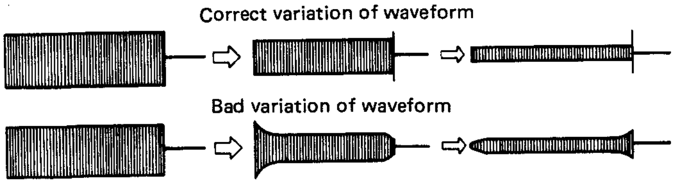

Correct variation of waveform
Bad variation of waveform

Fig. 2-2-3 FM waveform

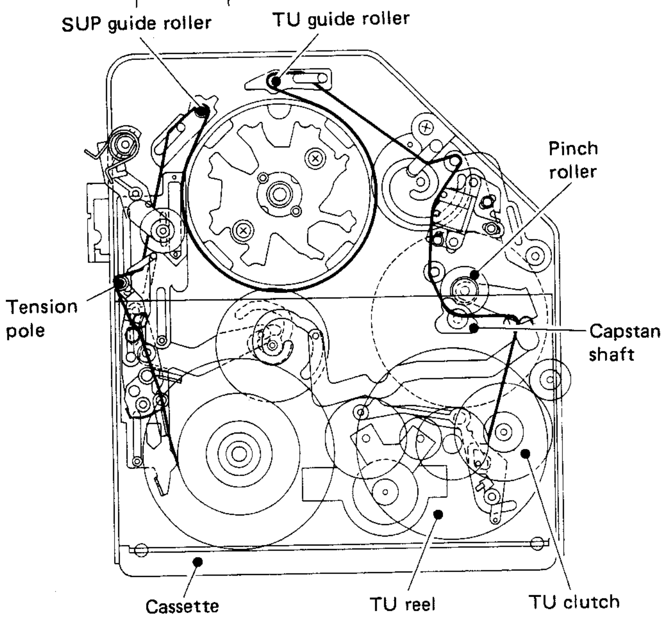

SUP guide roller
TU guide roller
Pinch roller
Tension pole
Capstan shaft
Cassette
TU reel
TU clutch

Fig. 2-2-4 Tape transport system

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
3	A/CTL head height & azimuth	• PB	• Alignment tape (Audio 7 kHz) (MHP-C or MH-C1)	• TP303 (AUDIO OUT) $\boxed{0}\boxed{2}$ A/V	• A/C head	1) Play the stairstep signal (audio 7 kHz) of the alignment tape and observe the waveform at TP303. **Note:** *If the output level is about –6 dBs (1.1 V p-p), it is normal.* 2) If necessary, slightly and evenly turn the screws Ⓐ (reference), Ⓑ (slant to the front) and Ⓒ (azimuth) in the same direction (up to 45° each) to obtain the maximum output level. 3) For the adjustment, use the screw Ⓑ to decrease the waveform fluctuation in level while use the screw Ⓒ to obtain the maximum output level.

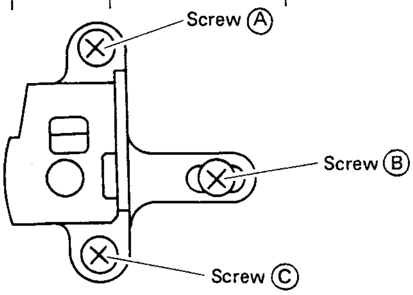


Fig. 2-2-5 A/C head

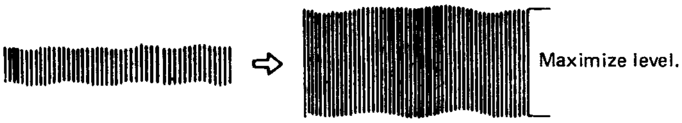


Fig. 2-2-6 Audio signal

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
4	Phase of CTL head (X value)	•PB	•Manual tracking •Alignment tape SP stairstep (MHP-C or MH-C1)	•CN1 pin 4 (PB FM) •CN1 pin 8 (DRUM FF) (Ext.trigger) $\boxed{0}\boxed{1}$ MAIN	•Control head	1) Observe waveform at pin 4 of CN1 with external trigger (+) from pin 8 of CN1. 2) While varying the Tracking CTL, confirm the following matter. When the Tracking CTL is at center position, FM level should be maximum. 3) If item 2) is not satisfied, the adjustment must be performed. Slightly loosen screws Ⓓ and Ⓔ and set the tip of the A/C head positioning tool in the groove and guide hole respectively. At first, put the A/C head fully in the direction of the capstan and then, gradually turn the tool clockwise and find out the point "c". 4) Fasten screws Ⓓ and Ⓔ. Confirm step 2). 5) Play back the EP stairstep signal of the alignment tape, and confirm that the FM output level is maximum at the tracking preset. 6) Confirm that the above steps 2) and 4) are satisfactory at the same time. If necessary, repeat the steps 3) through 6).

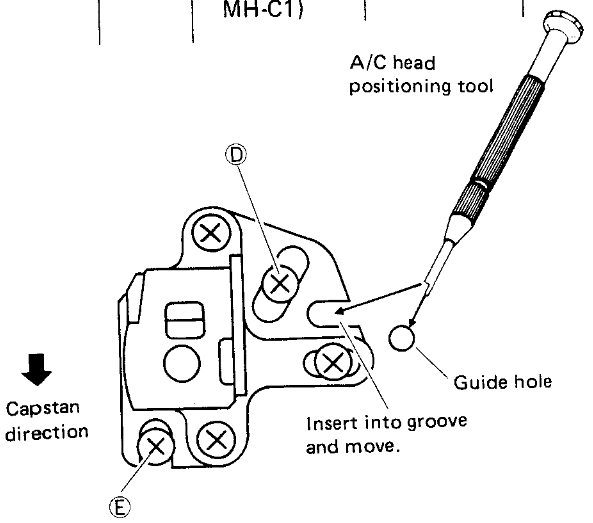


Fig. 2-2-7 CTL head phase

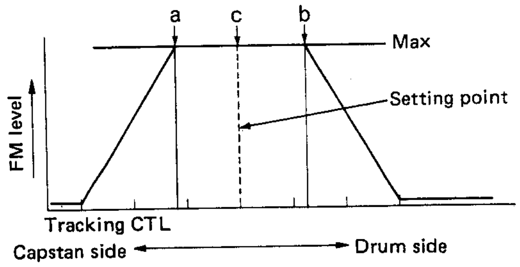


Fig. 2-2-8 CTL head phase adjusting point

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
5	PB switching point	•PB	•Manual tracking •Alignment tape SP stairstep (MHP-C or MH-C1)	•TP8 (VIDEO OUT) $\boxed{0}\boxed{2}$ A/V •CN5 pin 5 (DRUM FF) (Ext.trigger) $\boxed{0}\boxed{1}$ MAIN	•R103 (PB SWITCHING POINT) $\boxed{0}\boxed{1}$ MAIN	1) Observe waveform at TP8 with external trigger from pin 5 of CN5. 2) Adjust R103 so that the trigger point is 6.5H before V. sync signal.

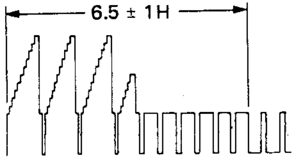
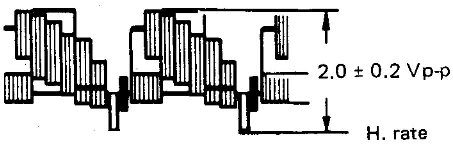
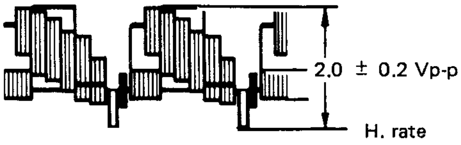
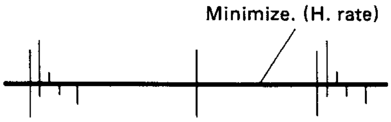
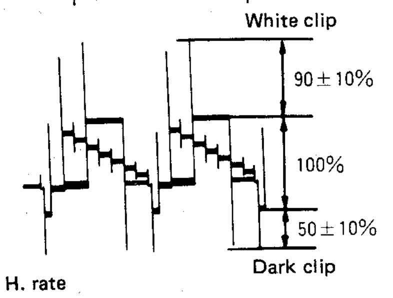
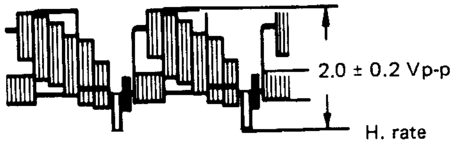
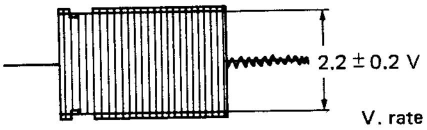


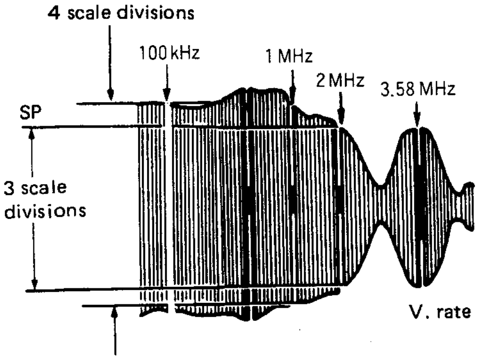
Fig. 2-2-9 PB switching point

2.3 LUMINANCE (Y) SIGNAL CIRCUIT

Notes: • *Before proceeding to do each adjustment, check the adjustment value.*
• *Unless otherwise specified, all adjustment points and adjustment parts are located on* 02 *A/V board.*

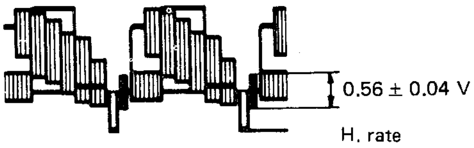
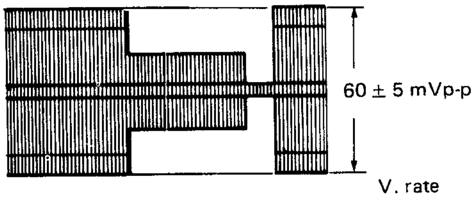
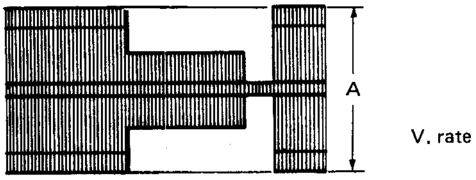
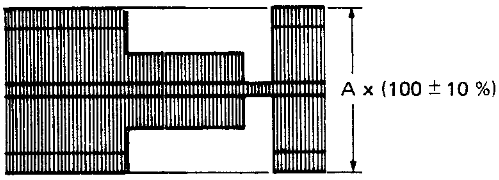
No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
1	EE Y level	• EE	• Color bar  **Fig. 2-3-1** EE Y level	• TP8 (VIDEO OUT)	• R11 (EE Y LEVEL)	1) Adjust R11 so that Y signal level is 2.0 Vp-p at TP8.
2	PB Y level	• PB	• Alignment tape SP color bar (MHV-2C or MH-C1)  **Fig. 2-3-2** N. PB Y level	• TP8 (VIDEO OUT)	• R16 (N. PB Y LEVEL)	1) Play back the color bar signal of the alignment tape. 2) Adjust R16 so that Y signal level is 2.0 Vp-p at TP8.
3	Y NR input level	• PB	• Alignment tape SP color bar (MHV-2C or MH-C1)  **Fig 2-3-3** Y NR input level	• TP2 (DEMOD OUT) • TP3 (Y NR INPUT)	• R39 (Y NR INPUT LEVEL)	1) Play the color bar signal of the alignment tape. 2) Connect CH-1 probe of a dual-trace oscilloscope to TP2 while CH-2 probe to TP3. Invert CH-2 signal and set the oscilloscope BOLTS/DIV switch to the same range to realize "ADD" mode. 3) Adjust R39 for minimum level in order to adjust to the same level.

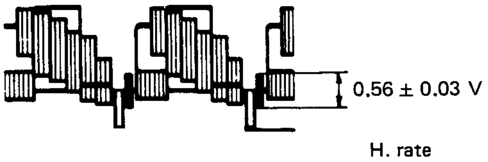
No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
4	White & Dark clip	•REC	•Color bar •SP	•TP4 (EMPHASIS)	•R35 (WHITE CLIP) •R32 (DARK CLIP)	1) Connect the oscilloscope to TP4. 2) Adjust R35 and R32 so that white clip becomes 90% and dark clip becomes 50% respectively.
		 White clip 90 ± 10% 100% 50 ± 10% Dark clip H. rate**Fig. 2-3-4** C white & dark clip				
5	Carrier deviation					**Note:** *This adjustment should be performed only when EE and playback of the pre-recorded tape are normal, while the sync at self-recording is distorted (poor carrier set) or S/N is extremely poor (poor deviation).*
		•REC •REC then PB	•No input signal •SP •Color bar •SP	•TP1 (REC FM) •TP8 (VIDEO OUT)	•R36 (CARRIER) •R37 (DEVIATION)	1) Connect a frequency counter to TP1. 2) Adjust R36 so that a frequency becomes 3.4 MHz ± 100 kHz. 3) Record the color bar signal and then paly the same portion. Confirm that TP8 output level is 2.0 ± 0.2 Vp-p. 4) If it is out of the above specification, adjust R37 during recording and repeat above step 3).
		 **Fig. 2-3-5** Carrier/deviation				
6	REC FM level	•REC	•Color bar •SP	•TP1 (REC FM OUT) $\boxed{0}\boxed{9}$ PRE-REC AMP	•R50 (REC FM LEVEL)	1) Adjust R50 to obtain 2.2 V as the FM level in the pedestal section.
		 **Fig. 2-3-6** REC FM level				

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
7	VIDEO EQ	• REC then PB	• Color sweep • SP  4 scale divisions 100 kHz 1 MHz 2 MHz 3.58 MHz SP 3 scale divisions V. rate **Fig. 2-3-7** Video EQ	• TP8 (VIDEO OUT)	• R66 (VIDEO EQ)	**Note:** *This adjustment should be performed only when a playback picture at self-recording is not sharp (low by 2 MHz component) or there is B/W reversal (high by 2 MHz component) in it after the upper drum was replaced.* 1) Record the color sweep signal and play it to observe waveform at TP8. 2) In the case the sweeper's 100 kHz marker frequency (start) is for 4 scale divisions on the oscilloscope screen, adjust R66 so that 2 MHz marker level becomes 3 scale divisions. **Note:** *After re-assembling the deck and camera sections together with, record a high contrast object in the SP and EP modes.* *While observing the playback picture, confirm that there is no B/W reversal and picture is sharp.*

2.4 COLOR (C) SIGNAL CIRCUIT

Notes: • *Before proceeding to do each adjustment, check the adjustment value.*
• *Unless otherwise specified, all adjustment points and adjustment parts are located on* [0][2] *A/V board.*

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
1	EE burst level	•EE	•Color bar  **Fig. 2-4-1** EE burst level	•TP8 (VIDEO OUT)	•R13 (EE BURST LEVEL)	1) Adjust R13 so that burst level at TP8 is 0.56 V.
2	PB color level	•PB	•Alignment tape SP color bar (MHV-2C or MH-C1)  **Fig. 2-4-2** PB color level	•TP6 (PB COLOR) •TP15 (Y OUT) (Ext.trigger)	•R113 (PB COLOR LEVEL)	1) Observe waveform at TP6 with external trigger pulse of TP15. 2) Adjust R113 so that signal level becomes 60 m Vp-p.
3	REC color level	•PB	•Alignment tape SP color bar (MHV-2C or MH-C1)	•TP6 (PB COLOR)	–	1) Connect the oscilloscope to TP6 and pin 1 (for external trigger) of CN5 on the MAIN board. 2) Play the color bar signal of the alignment tape. 3) Turn the Tracking CTL for maximum color level at TP6 and make a note of the highest channel level "A". 4) Record the color bar and then play the same portion. 5) Confirm that the highest channel level becomes becomes 100% of the noted level. 6) If necessary, adjust R117 during recording. 7) Confirm that the level difference between 4 channels is within 4 dB.
		•REC then PB	•Color bar  **Fig. 2-4-3** REC color level 1  **Fig. 2-4-4** REC color level 2		•R117 (REC COLOR LEVEL)	

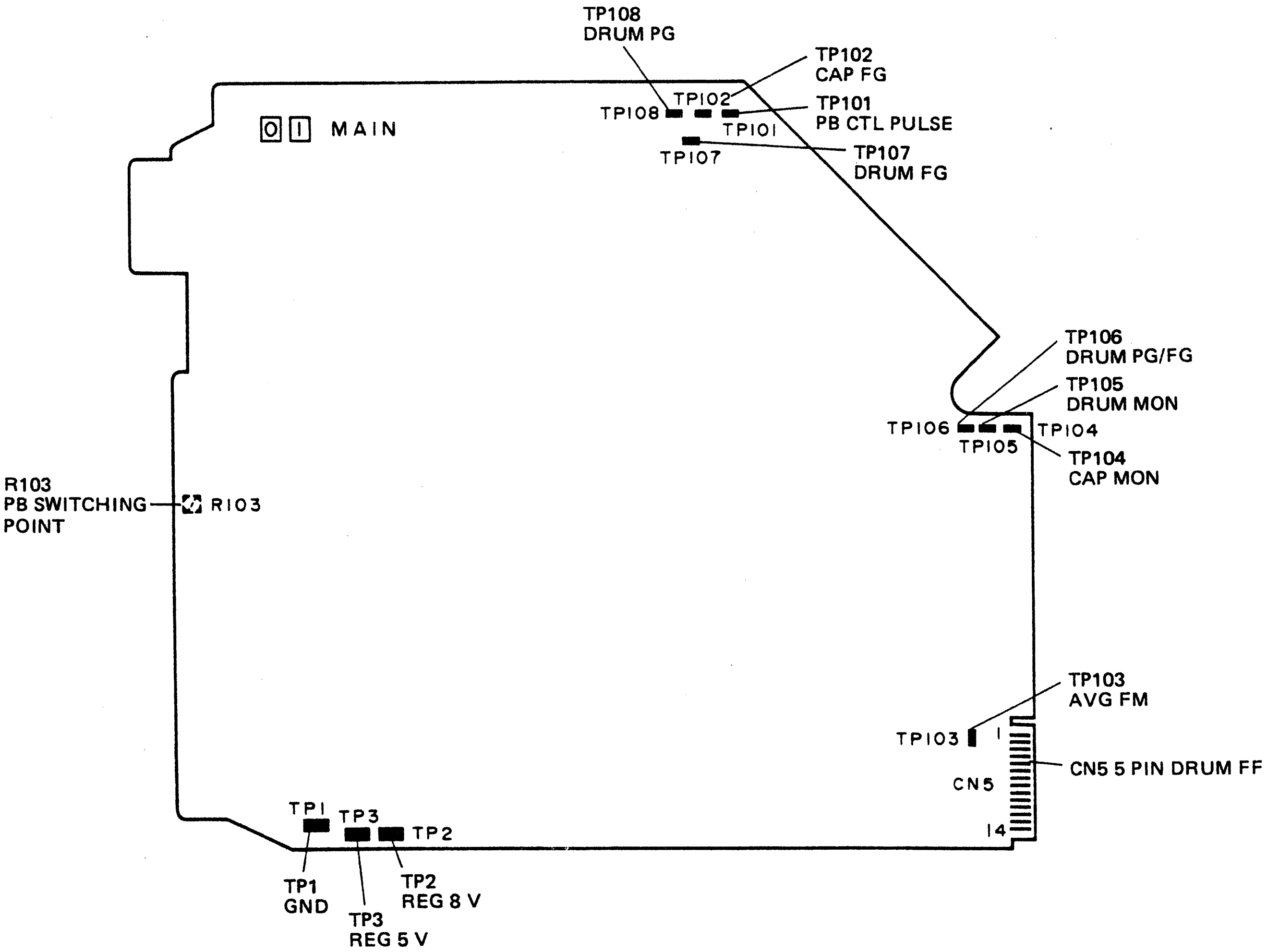
No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
4	PB burst level	• REC then PB	• Color bar • SP	• TP8 (VIDEO OUT)	• R102 (PB BURST LEVEL)	1) Record the color bar signal and play it back. 2) Observe waveform at TP8. 3) Adjust R102 so that burst level becomes 0.56 V.
	 Fig. 2-4-5 PB burst level					

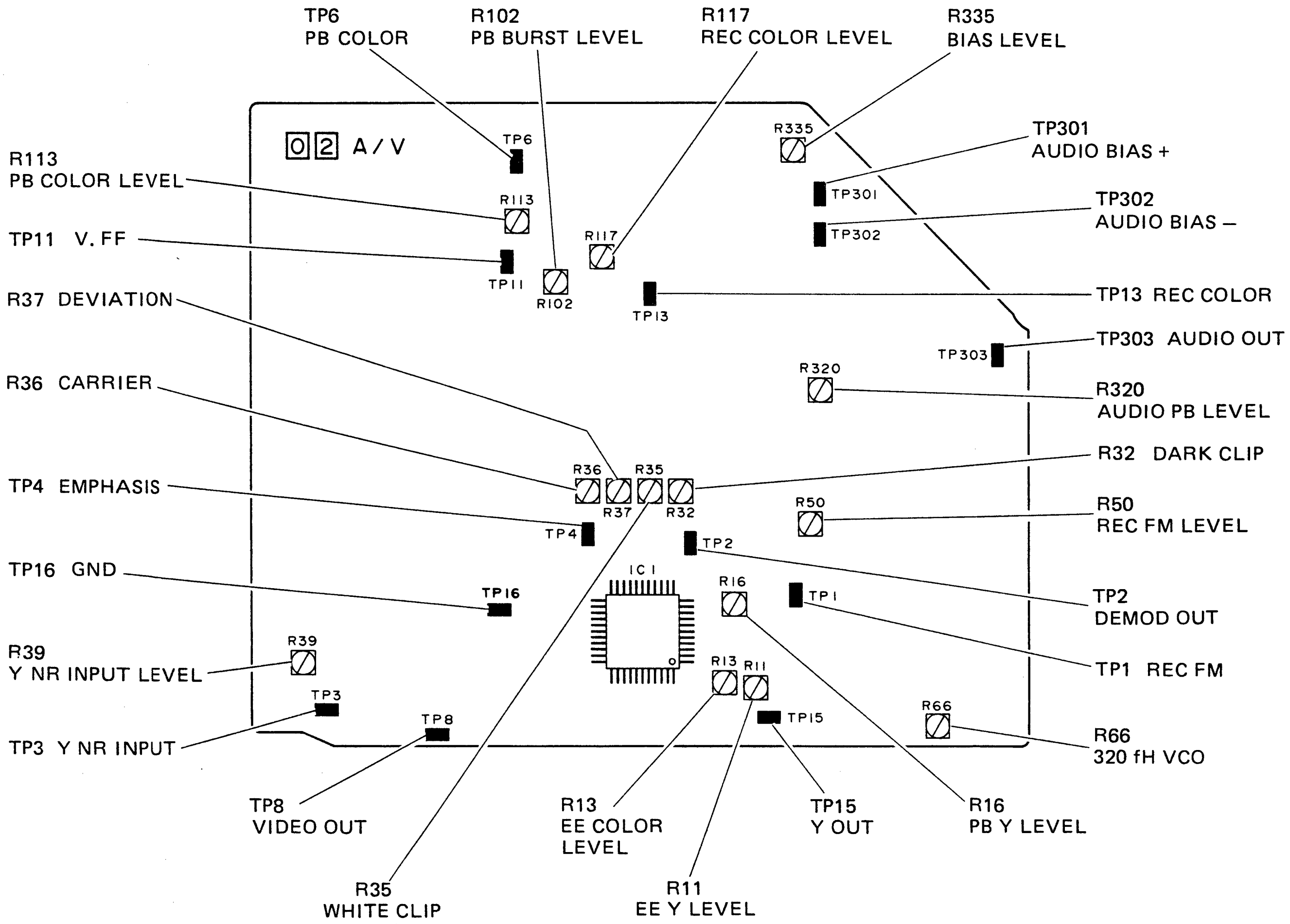
2.5 AUDIO CIRCUIT

Note: *Unless otherwise specified, all adjustment points and adjustment parts are located on* 0 2 *A/V board.*

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
1	Bias level	• REC	• No input signal • SP	• TP301 (AUDIO BIAS +) • TP302 (AUDIO BIAS –)	• R335 (BIAS LEVEL)	1) Connect an audio tester between TP301 and TP302. 2) Adjust R335 so that bias level is –50 dBs (7.1 mVp-p, 2.5 mVrms) in SP REC mode.
2	PB audio level	• REC then PB	• SP	• Audio output terminal	• R320 (AUDIO PB LEVEL)	1) Supply a sine wave of 1 kHz, –20 dBs (80 mV pp, 28.3 mVrms) to the audio input terminal. 2) Connect an audio tester to the audio output terminal, and adjust R320 in recording so that playback level becomes –6 dBs (1.1 Vp-p, 0.39 Vrms) in playback.

- **ADJUSTMENT ELEMENT LOCATION FOR DECK SECTION**

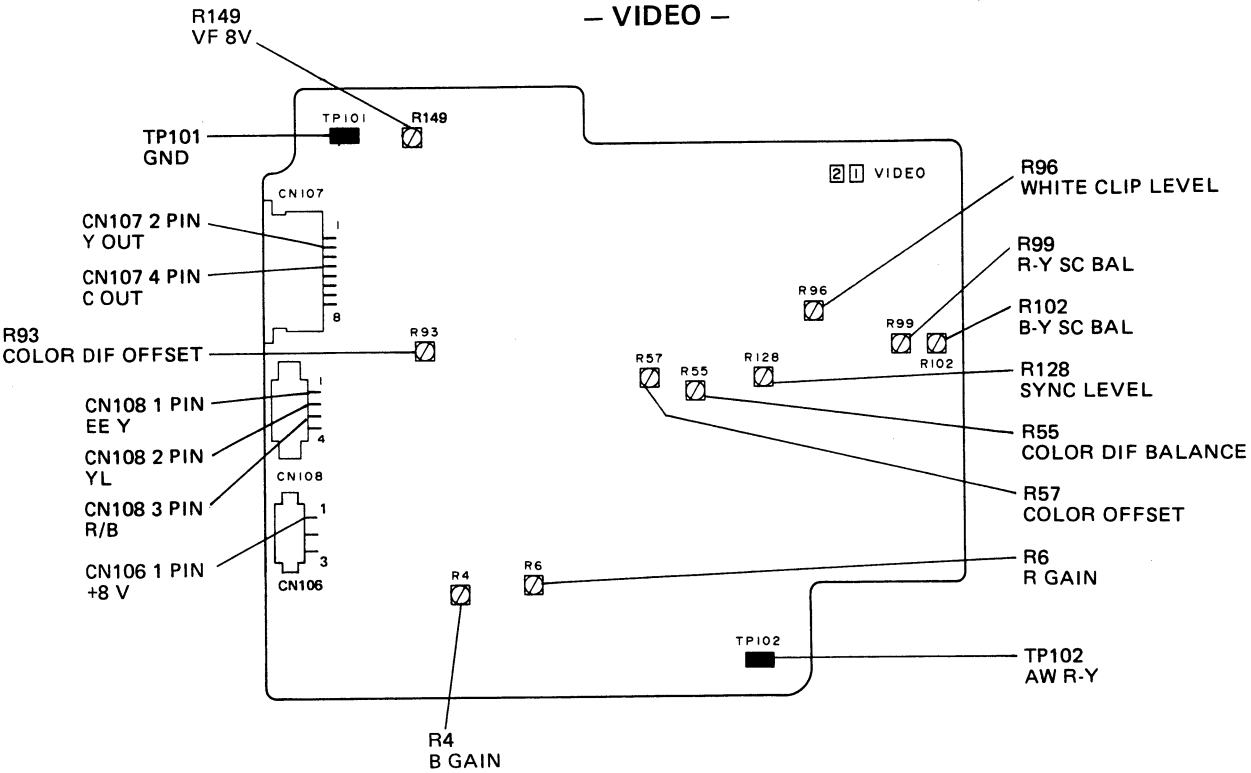

TP108
DRUM PG
TP102
CAP FG
TP101
PB CTL PULSE
TP107
DRUM FG
TP108
TP102
TP101
TP107
01 MAIN
TP106
DRUM PG/FG
TP105
DRUM MON
TP106
TP105
TP104
TP104
CAP MON
R103
PB SWITCHING
POINT
R103
TP103
AVG FM
TP103
1
CN5
14
CN5 5 PIN DRUM FF
TP1
TP3
TP2
TP1
GND
TP3
REG 5 V
TP2
REG 8 V


TP6
PB COLOR
R102
PB BURST LEVEL
R117
REC COLOR LEVEL
R335
BIAS LEVEL
02 A/V
TP6
R335
TP301
AUDIO BIAS +
R113
PB COLOR LEVEL
R113
TP301
TP302
AUDIO BIAS –
TP302
TP11 V. FF
R117
TP11
R102
TP13
TP13 REC COLOR
R37 DEVIATION
TP303
TP303 AUDIO OUT
R320
R36 CARRIER
R320
AUDIO PB LEVEL
R32 DARK CLIP
R36
R35
R37
R32
TP4 EMPHASIS
R50
R50
REC FM LEVEL
TP4
TP2
TP16 GND
IC1
R16
TP1
TP2
DEMOD OUT
TP16
R39
R39
Y NR INPUT LEVEL
R13
R11
TP1 REC FM
TP3
R66
TP3 Y NR INPUT
TP8
TP15
R66
320 fH VCO
TP8
VIDEO OUT
R13
EE COLOR
LEVEL
TP15
Y OUT
R16
PB Y LEVEL
R35
WHITE CLIP
R11
EE Y LEVEL

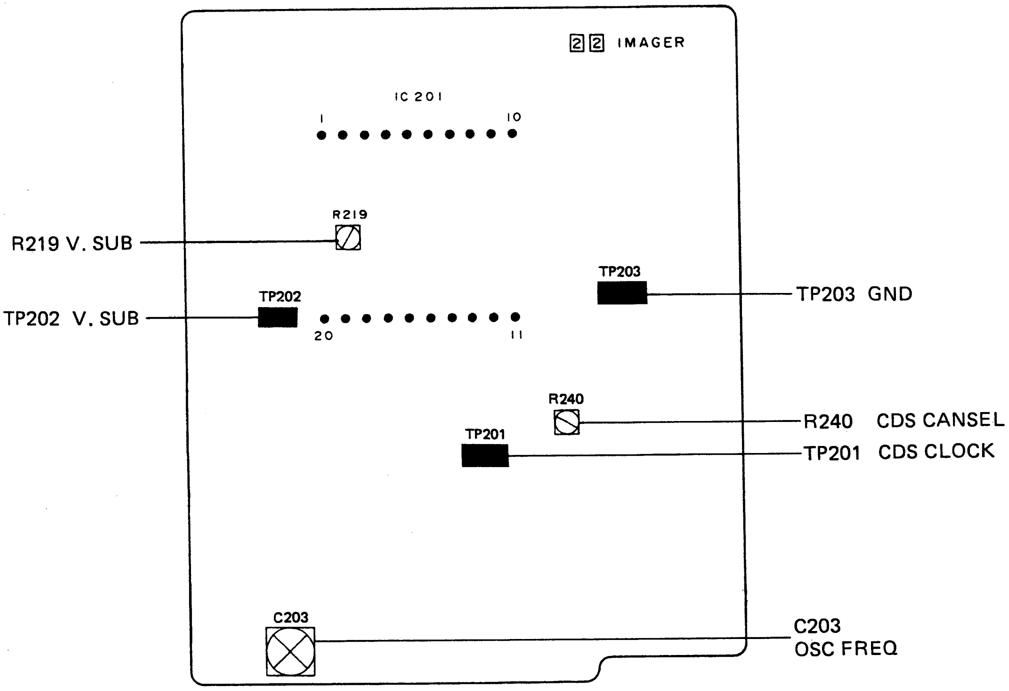
SECTION 3
CAMERA SECTION ADJUSTMENT

- **ADJUSTMENT ELEMENT LOCATION FOR CAMERA SECTION**

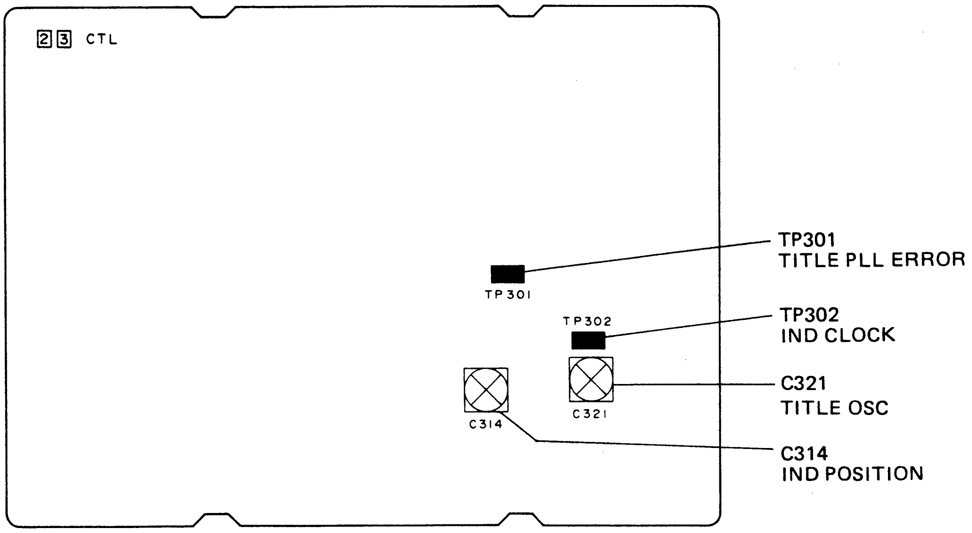
– VIDEO –


R149
VF 8V
TP101
GND
TP101
R149
21 VIDEO
CN107
CN107 2 PIN
Y OUT
CN107 4 PIN
C OUT
1
8
R93
COLOR DIF OFFSET
R93
CN108 1 PIN
EE Y
CN108 2 PIN
YL
CN108 3 PIN
R/B
CN108
1
4
CN106 1 PIN
+8 V
CN106
1
3
R4
R6
R96
WHITE CLIP LEVEL
R99
R-Y SC BAL
R102
B-Y SC BAL
R96
R99
R102
R57
R55
R128
R128
SYNC LEVEL
R55
COLOR DIF BALANCE
R57
COLOR OFFSET
R6
R GAIN
TP102
TP102
AW R-Y
R4
B GAIN

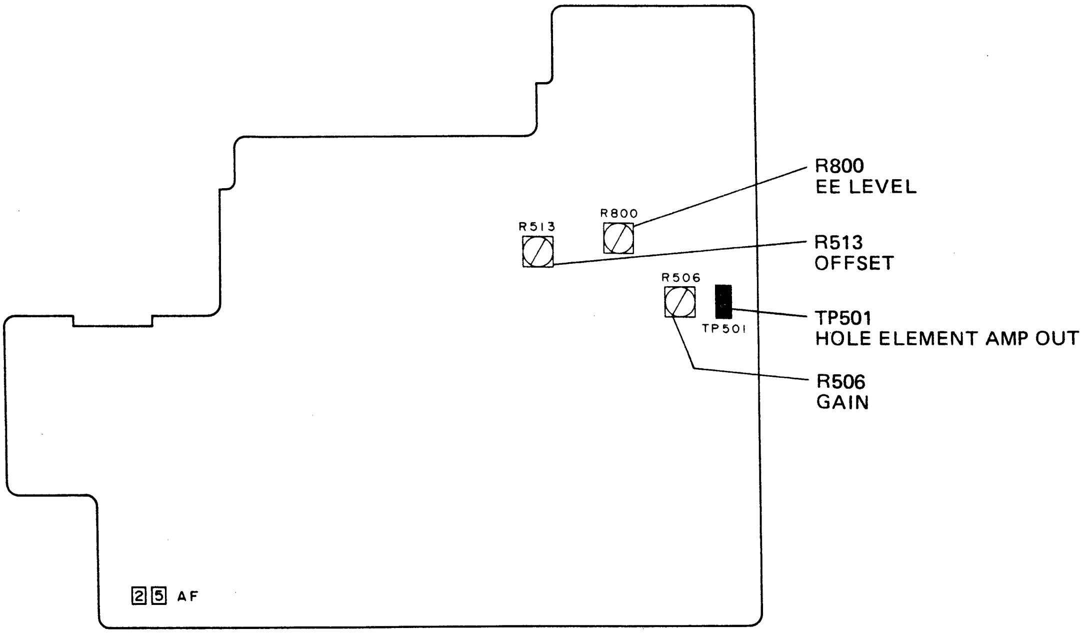
– IMAGER –


22 IMAGER
IC 201
1
10
R219
R219 V. SUB
TP203
TP203 GND
TP202
TP202 V. SUB
20
11
R240
R240 CDS CANSEL
TP201
TP201 CDS CLOCK
C203
C203
OSC FREQ

— CTL —


23 CTL
TP301
TP302
C314
C321
TP301
TITLE PLL ERROR
TP302
IND CLOCK
C321
TITLE OSC
C314
IND POSITION

— AF —


R800
R513
R506
TP501
25 AF
R800
EE LEVEL
R513
OFFSET
TP501
HOLE ELEMENT AMP OUT
R506
GAIN

3.1 PREPARATION

3.1.1 Precautions

1. For the following adjustments, two or more halogen lamps whose illuminance is more than 1200 lux with color temperature of 3100 K.
2. Make sure to use a clean test pattern and camera filters.
3. All adjustments must be performed in a room where lights other than the specific illumination are shut out.
4. Unless otherwise specified, the controls and camera mode must be set as follows.

   Focus : MANUAL
   Iris : AUTO
   White balance : PRESET INDOOR
   Shutter speed : STANDARD
   Mode : REHEARSAL

5. During the adjustments, an oscilloscope's channel B should be connected to pin 2 (Y OUT) of CN107 of the $\boxed{2}\boxed{1}$ VIDEO board and the channel A should be connected to a specified test point for measurement by minus trigger.
6. Digit after the hyphens to indicate combined filter value.

   Examples : ① C2 + C4 = C6
   ② W4 + W8 = W12
   ③ ND2 + ND4 + ND8 = ND64
   | | |
   $ND2^1 + ND2^2 + ND2^3 = ND2^6 = ND64$
   ④ CC10Y + CC05Y = CC15Y
   ⑤ CC10B + CC025B + CC025B = CC15B

3.1.2 Connection for adjustment

- For disassembly of the camera section, refer to the section "DISASSEMBLY OF CAMERA SECTION".

Connector	No.of pin	Connection
①	3	$\boxed{0}\boxed{3}$ JACK CN2 ↔ $\boxed{2}\boxed{2}$ IMAGER CN201
②	8	$\boxed{0}\boxed{2}$ A/V CN6 ↔ $\boxed{2}\boxed{1}$ VIDEO CN107
③	8	$\boxed{0}\boxed{1}$ MAIN CN8 ↔ $\boxed{2}\boxed{3}$ CTL CN305
④	7	$\boxed{2}\boxed{4}$ AW CN401 ↔ SENSOR UNIT
⑤	16	$\boxed{0}\boxed{1}$ MAIN CN10 ↔ OPERATION UNIT
⑥	6	$\boxed{2}\boxed{5}$ AF CN503 ↔ Zoom switch
⑦	7	$\boxed{2}\boxed{8}$ C. SW CN701 ↔ $\boxed{2}\boxed{3}$ CTL CN306

Table 3-1-1 Destination of patch cords

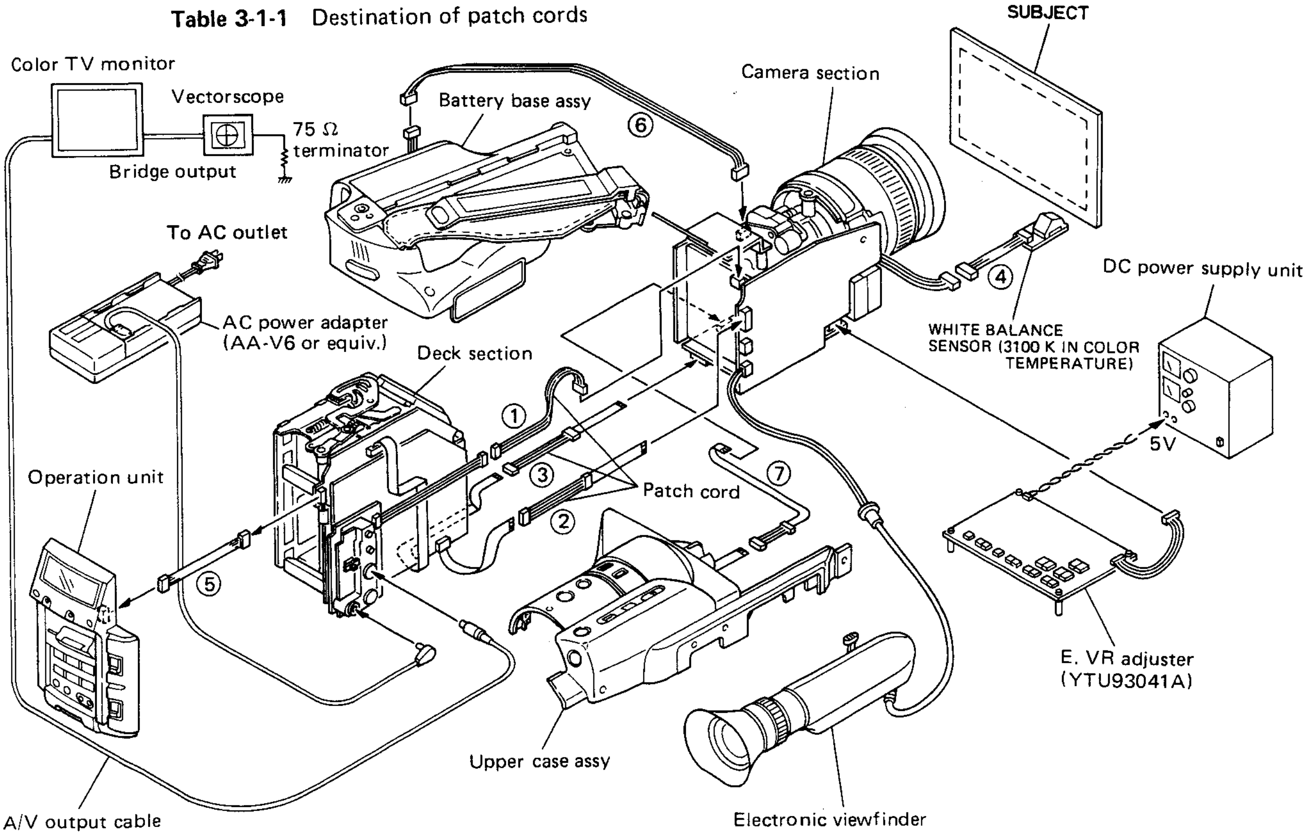

SUBJECT
Color TV monitor
Vectorscope
75 Ω
terminator
Bridge output
Battery base assy
Camera section
⑥
To AC outlet
AC power adapter
(AA-V6 or equiv.)
Deck section
④
DC power supply unit
WHITE BALANCE
SENSOR (3100 K IN COLOR
TEMPERATURE)
5V
①
③
②
⑦
Patch cord
Operation unit
⑤
E. VR adjuster
(YTU93041A)
Upper case assy
A/V output cable
Electronic viewfinder

Fig. 3-1-1 Connection for camera adjustment

3.1.3 Basic operation of E. VR adjuster

1. Make sure to connect the camera section and the E. VR adjuster in the condition of power off.
2. Turn on the POWER ON/RESET switch of the E. VR adjuster.
   (→ All LEDs light.)
3. Turn on the camera section.
4. Set the camera mode to "REHEARSAL", and then set the white balance to "PRESET INDOOR", the AF to "MANUAL" and the iris to "AUTO".
5. Select a channel by pressing the "+/−" button.
6. Press the START button.
   (→ Setting data of the camera are read out, and they are displayed in the SET-DATA, JIG-DATA LEDs.)
7. Input specified adjustment data by pressing the UP/DOWN button.
   (→ The SET-DATA indication goes out, while the MEMORY LED lights.)
8. After confirming that the inputted data are correct, press the MEMORY button.
   (→ The MEMORY LED goes out and the inputted data are displayed.)
9. Press the END button.
10. Repeat the above steps 5 through 6.
11. After the adjustment, turn off the power switch in the order of the E. VR adjuster and the camera. Then, disconnect them.

Notes: *1) In the process of adjustment, the IRIS and SHUTTER buttons are ineffectual unless the START button of the E. VR adjuster is pressed.*
2) Do not press the RESET button of the E. VR adjuster except in case of trouble in data transmission and reception.

3.1.4 Setting of CPU's white balance data

Before starting the following adjustments, set the CPU's white balance data by the E. VR adjuster as follows.

CH	5A	5B	5C	5D	5E	5F	60	61	62	63	64	65
Data	48	6F	64	42	60	50	59	67	6D	4D	0C	60

Table 3-1-1 Setting of CPU's data for white balance

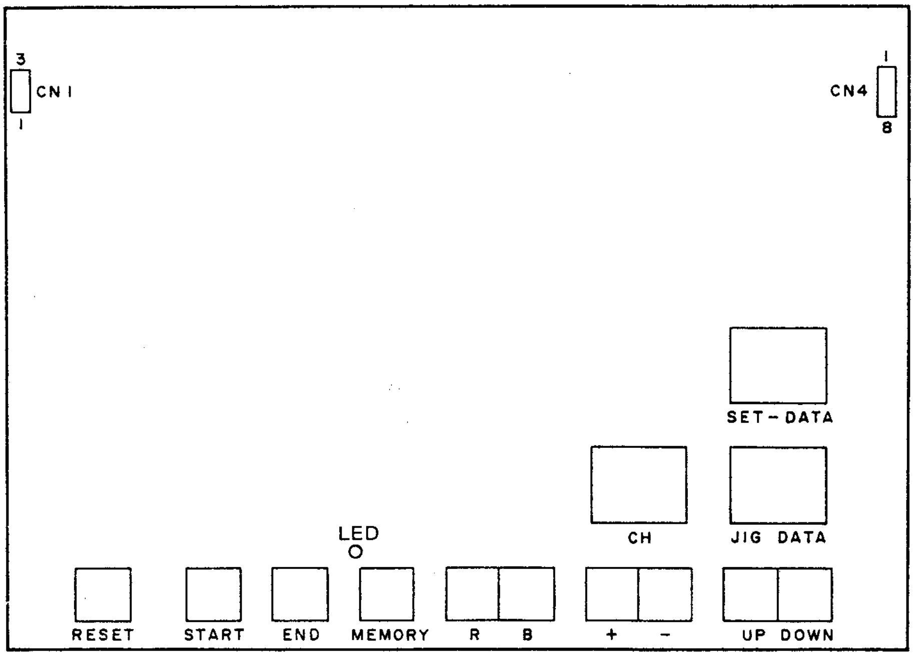
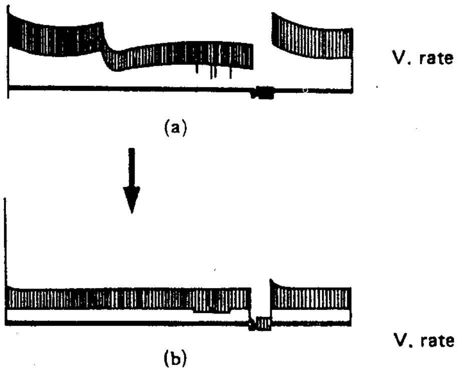
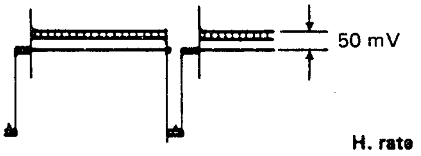
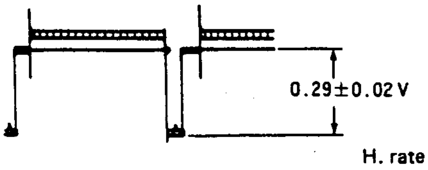
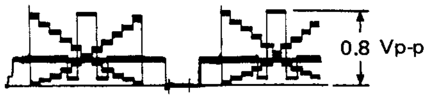
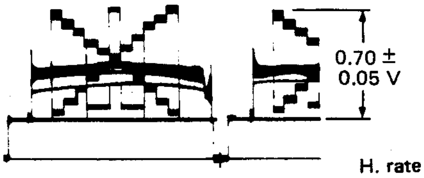
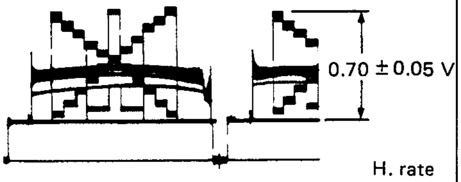
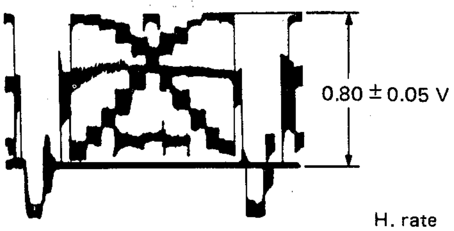


Fig. 3-1-2 EVR adjuster buttons location

3.2 LUMINANCE (Y) SIGNAL SYSTEM

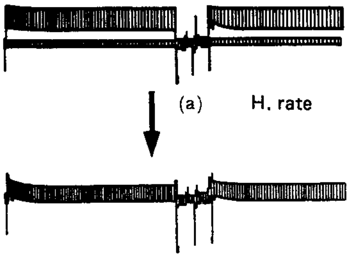
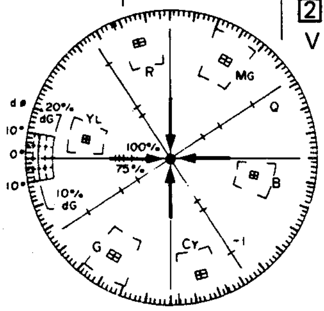
No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
1	SSG clock osc. freq.	•EE	–	• TP201 (CDS CLOCK) 22 IMAGER	• C203 (OSC FREQ) 22 IMAGER	1) Connect a frequency counter to TP201, and adjust C203 so that the frequency counter reads 9.534964 MHz ± 50 Hz.
2	CDS cancel	•EE	Lens: Closed Shutter: 1/100  Fig. 3-2-1 CDS cancel	• CN107 Pin 2 (Y OUT) 21 VIDEO	•R240 (CDS CANCEL) 22 IMAGER	1) Close the lens with the lens cap and set the shutter speed to 1/100 (sec). 2) Adjust R240 so that waveform at pin 2 of CN-107 becomes flat.
3	V.SUB	•EE	–	• TV monitor	•R219 (V. SUB) 22 IMAGER	1) Pick up a fluoerscent light and adjust R219 to minimize blooming. **Note:** *No matter how further R219 is turned, there will be no change in blooming observed on the monitor. Therefore, set VR219 to a position where blooming becomes minimum for the first time and won't change any more even if R219 is turned further.*
4	YH setup level	•EE	• Iris: Closed  Fig. 3-2-2 YH setup level	•CN107 pin 2 (Y OUT) 21 VIDEO	• E9 (YH SETUP) [E. VR]	1) Set the channel of the E. VR adjuster to E9 and press the START button. 2) Close the iris manually. 3) Adjust the data of the channel E9 of the E. VR adjuster so that the setup level becomes 50 mV. 4) Set to the AUTO IRIS mode and press the END button of E. VR adjuster.

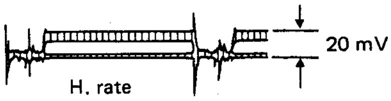
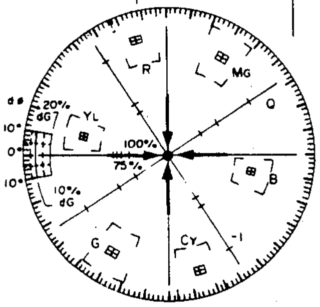
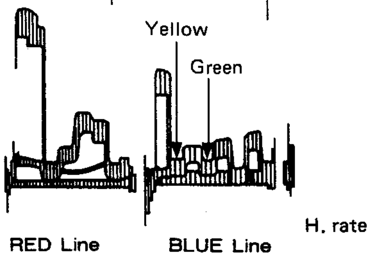
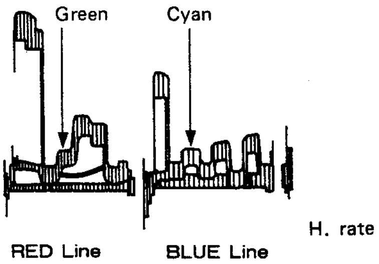
No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
5	Sync. level	• EE	• Lens: Closed  Fig. 3-2-3 Sync. level	• CN107 pin 2 (Y OUT) 21 VIDEO	• R128 (SYNC LEVEL) 21 VIDEO	1) Close the lens with the lens cap. 2) Adjust R128 so that sync. level becomes 0.29 V at pin 2 of CN107 of the VIDEO board.
6	YH gain	• EE	• Gray scale • Iris: Manual  Fig. 3-2-4 EE Y	• CN108 pin 1(EE Y) 21 VIDEO		1) Set the channel of the E. VR adjuster to EA and press the START button. 2) Pick up the gray scale. 3) Manually operate the iris to obtain 0.8 Vp-p of signal level at pin 1 of CN108.
			 Fig. 3-2-5 YH gain	• CN107 pin 2 (Y OUT) 21 VIDEO	• EA (YH GAIN) [E. VR]	4) Adjust the data of the channel EA of the E. VR adjuster so that signal level at pin 2 of CN107 becomes 0.70 V. 5) Set to the AUTO IRIS mode and press the END button of E. VR adjuster.
7	Max. AGC setting	• EE	—	—	• E0 (AGC GAIN) [E. VR]	1) Set the data of the channel E0 of the E. VR adjuster to '7F'.
8	EE level	• EE	• Gray scale • Just scan  Fig. 3-2-6 EE level	• CN107 pin 2 (Y OUT) 21 VIDEO	• R800 (EE LEVEL) 25 AF	1) Pick up the gray scale in just scan. 2) Adjust R800 so that signal level at pin 2 of CN-107 becomes 0.70 V.

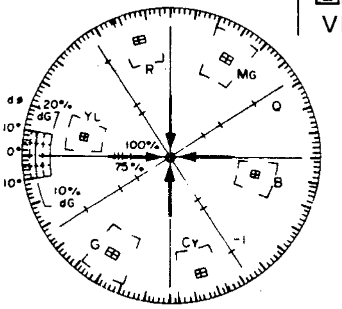
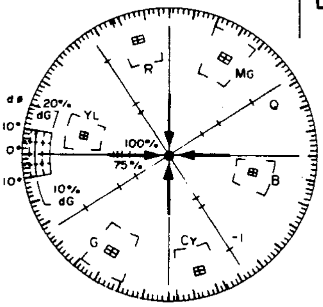
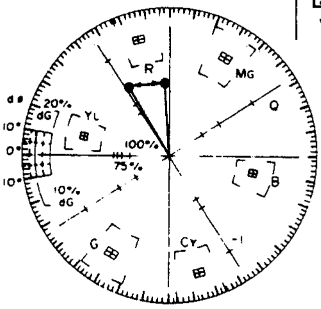
No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
9	White clip level	• EE	• Gray scale • Iris: Manual	• CN107 Pin 2 (Y OUT) [2][1] VIDEO	• R96 (WHITE CLIP LEVEL) [2][1] VIDEO	1) Press the START button of the E. VR adjuster. 2) Pick up the gray scale. 3) Manually operate the iris to flatten the waveform of pin 2 of CN107 for the upper three steps of the gray scale. 4) Adjust R96 so that the signal level is 0.80 V. 5) Set to the AUTO IRIS mode and press the END button of E. VR adjuster.
		 Fig. 3-2-7 White clip level				
10	Title osc.	• EE	–	• TP301 (TITLE PLL ERROR) [2][3] CTL	• C321 (TITLE OSC) [2][3] CTL	1) Adjust C321 so that the level at TP301 becomes 1.5 ± 0.2 V DC.
11	Indicator position	• EE	• Lens: Closed • Day/Time switch: ON	• E. VF indicator	• C314 (IND POSITION) [2][3] CTL	1) Close the lens with the lens cap and turn on the Day/Time switch. 2) Adjust C314 so that the white balance indication and the day/time indication are positioned in the center (midpoint of the left- and right-most indication positions) in the viewfinder respectively.
12	Hall element	• EE	• Iris: Open with lens caped • Iris: Closed	• TP501 (HALL ELEMENT DC OUT) • TP501 (HALL ELEMENT DC OUT) [2][5] AF	• R506 (GAIN) [2][5] AF • R513 (OFFSET) [2][5] AF	1) Press the START button of the E. VR adjuster. 2) Open the iris manually with lens caped. 3) Adjust R506 so that the level at TP501 becomes 3.95 ± 0.05 V DC. 4) Manually close the iris. 5) Adjust R513 so that the level at TP501 becomes $1.0^{+0.05}_{-0}$ V DC. 6) Repeat the above steps 2) through 5) to confirm that the level meets the specified value both in the conditions of the iris open and closed. 7) Set to the AUTO IRIS mode and press the END button of E. VR adjuster.
13	VF POWER SUPPLY	• EE	–	• CN106 pin 1 (+8 V) [2][1] VIDEO	• R149 (VF 8 V) [2][1] VIDEO	1) Adjust R149 so that the DC level at pin 1 of CN106 becomes 8.0 V DC.

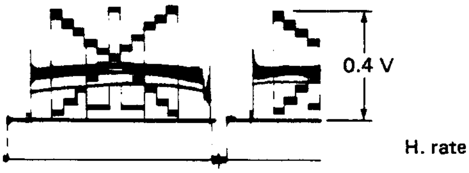
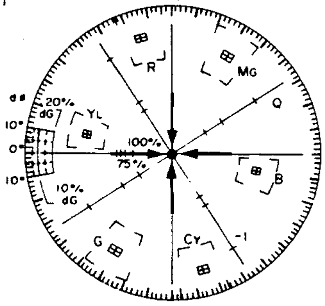
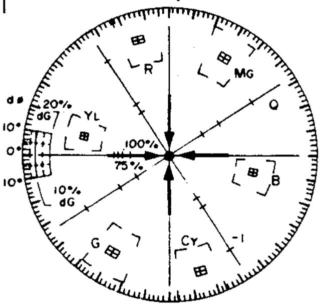
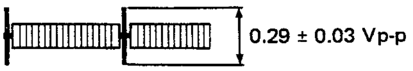
3.3 COLOR SIGNAL SYSTEM

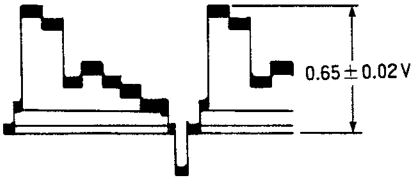
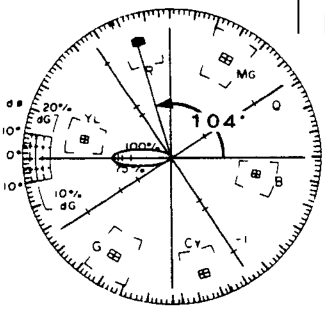
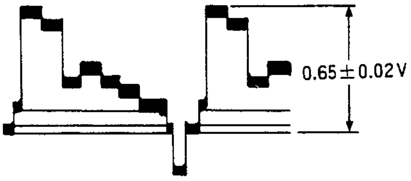
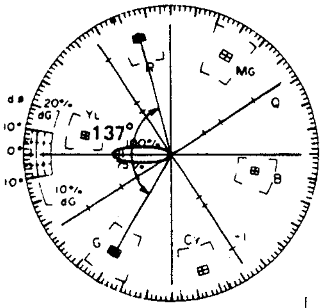
3.3.1 Standard indoor mode

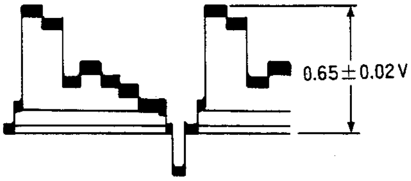
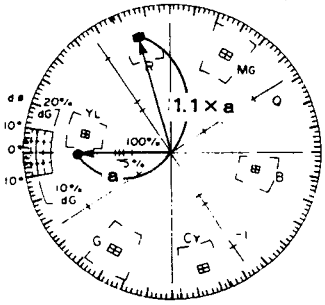
No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
1	Indoor R/B OUT setting	•EE	–	–	•4F (INDOOR R OUT) •50 (INDOOR B OUT) [E. VR]	**Note:** *Perform this item by the channel 4F of the E. VR adjuster.* 1) Set the channel of the E. VR adjuster to 4F and press the START button. 2) Data set on the channel 4F is displayed on the LED and then data of the channel 50 will be displayed in succession. 3) Press the 'R' button and then set data to 40. 4) Press the 'B' button and then set data to 6D. 5) Press the MEMORY button and confirm that the LED displays 40 and 6D is displayed. 6) Press the END button to finish data setting.
2	Subcarrier balance setting	•EE	–	–	•E4 (R SETUP) •E3 (B SETUP) •EB (YL SETUP) [E. VR]	1) Set data of channels E3, E4 and EB of the E. VR adjuster to '00'.
3	Color offset	•EE	• Iris: Closed  **Fig. 3-3-1** Color offset	• TP102 (AW R-Y) $\boxed{2}\boxed{1}$ VIDEO	• R57 (COLOR OFFSET) $\boxed{2}\boxed{1}$ VIDEO	1) Press the START button of the E. VR adjuster. 2) Manually close the iris. 3) Adjust R57 to minimize average level of waveform at TP102. 4) Set to the AUTO IRIS mode and press the END button of E. VR adjuster.
4	Subcarrier balance	•EE	• Iris: Closed  R MG Q YL B G CY -I dθ 20% dG 10° 0° 10° 100% 75% 10% dG **Fig. 3-3-2** Subcarrier balance	• Vectorscope	• R99 (R-Y SC BAL) • R102 (B-Y SC BAL) $\boxed{2}\boxed{1}$ VIDEO	1) Press the START button of the E. VR adjuster. 2) Manually close the iris. 3) Adjust R99 and R102 to center every dot on a vectorscope. 4) Set to the AUTO IRIS mode and press the END button of E. VR adjuster.

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
5	YL setup	•EE	• Iris: Closed  **Fig. 3-3-3** YL setup	• CN108 pin 2 (YL) [2][1] VIDEO	• EB (YL SETUP) [E. VR]	1) Set the channel of the E. VR adjuster to EB and press the START button. 2) Manually close the iris. 3) Reset data of the channel EB of the E. VR adjuster to obtain 20 mV as the setup level. 4) Set to the AUTO IRIS mode and press the END button of E. VR adjuster.
6	R/B setup rough adj.	•EE	• Iris: Closed  R MG Q YL 20% dG 10° 0° 10° 100% 75% 10% dG B G CY -I **Fig. 3-3-4** R/B setup rough adjustment	• Vectorscope	• E3 (B SETUP) • E4 (R SETUP) [E. VR]	1) Set the channel of the E. VR adjuster to E4 and press the START button. 2) Manually close the iris. 3) Alternately reset data of the channels E4 and E3 of the E. VR adjuster so that every dot is centered on the vectorconer. 4) Set to the AUTO IRIS mode and press the END button of E. VR adjuster.
7	B separation	•EE	• Color bar  **Fig. 3-3-5** B separation	• CN108 pin 3 (R/B) [2][1] VIDEO	• E1 (B SEPARATION) [E. VR]	1) Pick up the color bar. 2) Adjust data of the channel E1 of the E. VR adjuster to equalize yellow level and green level of the blue line.
8	R separation	•EE	• Color bar  **Fig. 3-3-6** R separation	• CN108 pin 3 (R/B) [2][1] VIDEO	• E2 (R SEPARATION) [E. VR]	1) Pick up the color bar. 2) Adjust data of the channel E2 of the E. VR adjuster to equalize cyan level of the blue line and green level of the red line.

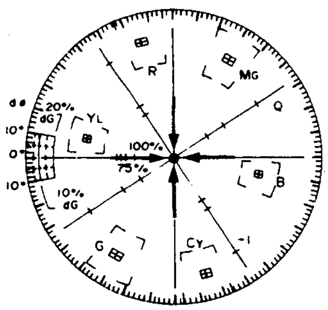
No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
9	Color difference offset	•EE	• Iris: Closed  R MG Q YL B G CY -I dφ 20% dG 10° 0° 10° 100% 75% 10% dG **Fig. 3-3-7** Color difference offset	• Vectorscope	• R93 (COLOR DIF. OFFSET) 21 VIDEO	1) Press the START button of the E. VR adjuster. 2) Close the iris manually. 3) Adjust R93 to center every dot on the vectorscope. 4) Set to the AUTO IRIS mode and press the END button of E. VR adjuster.
10	R/B gain	•EE	• Gray scale  R MG Q YL B G CY -I dφ 20% dG 10° 0° 10° 100% 75% 10% dG **Fig. 3-3-8** R/B gain	• Vectorscope	• R6 (R GAIN) • R4 (B GAIN) 21 VIDEO	1) Pick up the gray scale. 2) Adjust R6 and R4 to center every dot on the vectorscope.
11	Color difference balance	•EE	• Color bar  R MG Q YL B G CY -I dφ 20% dG 10° 0° 10° 100% 75% 10% dG **Fig. 3-3-9** Color difference balance	• Vectorscope	• R55 (COLOR DIF. BALANCE) 21 VIDEO	1) Pick up the color bar. 2) Adjust R55 to double red dots on the vectorscope.

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
12	R/B setup rough adj.	•EE	• Gray scale • Iris: Manual	• CN107 Pin 2 (Y OUT) 2 1 VIDEO		1) Set the channel of the E. VR adjuster to E3 and press the START button. 2) Pick up the gray scale. 3) Manually operate the iris to obtain 0.4 V of signal level at pin 2 of CN107 of the VIDEO board.
			 Fig. 3-3-10 Y out			
				• Vectorscope	• E3 (R SETUP) • E4 (B SETUP) [E. VR]	4) Alternately adjust data of the channels E4 and E3 of the E. VR adjuster so that every dot is centered on the vectorscope.
			 R MG Q YL B G CY -I 20% dG 10% dG 100% 75% 10° 0° 10° Fig. 3-3-11 R/B setup fine adjustment - 1			
			• Iris: Auto	• Vectorscope	• R6 (R GAIN) • R4 (B GAIN) 2 1 VIDEO	5) Set the iris to AUTO and adjust R6 and R4 alternately so that every dot is centered on the vectorscope. 6) Repeat the above steps 3) through 5) to satisfy all the requirements. 7) Set to the AUTO IRIS mode and press the END button of E. VR adjuster.
			 R MG Q YL B G CY -I 20% dG 10% dG 100% 75% 10° 0° 10° Fig. 3-3-12 R/B setup fine adjustment - 2			
13	Burst level	•EE	• Lens: Closed	• CN107 pin 4 (C OUT) 2 1 VIDEO	• E7 (BURST LEVEL) [E. VR]	1) Close the lens with the lens cap, and adjust data of the channel E7 of the E. VR adjuster so that burst level at pin 4 of CN107 is 0.29 Vp-p.
			 Fig. 3-3-13 Burst level			

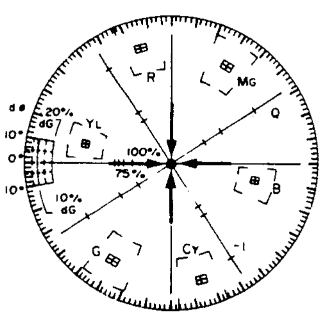
No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
14	Burst phase	•EE	• Color bar • Iris: Manual	• CN107 Pin 2 (Y OUT) [2][1] VIDEO		1) Set the channel of the E. VR adjuster to E8 and press the START button. 2) Pick up the color bar. 3) Manually operate the iris so that signal level at pin 2 of CN107 becomes 0.65 V.
			 **Fig. 3-3-14** Y out			
				• Vectorscope	• E8 (BURST PHASE) [E. VR]	4) Adjust data of the channel E8 of the E. VR adjuster so that the phase angle of red signal is 104° (phase angle of R) on the vectorscope. 5) Set to the AUTO IRIS mode and press the END button of E. VR adjuster.
			 104° R MG Q YL B G CY -I 20% dG 10% 100% 75% dθ 10° 0° 10° **Fig. 3-3-15** Burst phase			
15	B-Y gain	•EE	• Color bar • Iris: Manual	• CN107 Pin 2 (Y OUT) [2][1] VIDEO		1) Set the channel of the E. VR adjuster to E5 and press the START button. 2) Pick up the color bar. 3) Manually operate the iris so that signal level at pin 2 of CN107 becomes 0.65 V.
			 **Fig. 3-3-16** Y out			
				• Vectorscope	• E5 (B-Y GAIN) [E. VR]	4) Adjust data of the channel E5 of the E. VR adjuster so that phase of red and green is 137° on the vetorscope. 5) Set to the AUTO IRIS mode and press the END button of E. VR adjuster.
			 137° R MG Q YL B G CY -I 20% dG 10% 100% 75% dθ 10° 0° 10° **Fig. 3-3-17** B-Y gain			

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
16	Color gain	•EE	• Color bar • Iris: Manual	• CN107 Pin 2 (Y OUT) 2 1 VIDEO  **Fig. 3-3-18** Y out		1) Set the channel of the E. VR adjuster to E6 and press the START button. 2) Pick up the color bar. 3) Manually operate the iris to obtain 0.65 V of signal level at pin 2 of CN107.
				• Vectorscope  R MG Q 1.1 × a YL 20% dG dθ 10° 0° 10° 100% 5% a 10% dG B G CY -I **Fig. 3-3-19** Color gain	• E6 (CHROMA GAIN) [E. VR]	4) Adjust data of the channel E6 of the E. VR adjuster so that level od red component becomes 1.1 times as high as burst level on the vecorscope. 5) Set to the AUTO IRIS mode and press the END button of E. VR adjuster.

3.3.2 Preset FL (fluorescent light) white balance

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
1	FL R/B out	• EE	• Gray scale • White bal: FL • Lens: with C8 + CC15Y + CC05R filters  R MG Q 20% dG YL 10° 0° 10° 100% 75% 10% dG B G CY -I **Fig. 3-3-20** FL R/B out	• Vectorscope	• 53 (FL R OUT) • 54 (FL B OUT) [E. VR]	Note: *Perform this adjustment by the channel of 53.* 1) Pick up the gray scale. 2) Set the white balance switch to FL. 3) Attach filters of C8 + CC15Y + CC05R to the lens. 4) Set the channel of the E. VR adjuster to '53' and press the START button. 5) Adjust data of R gain by the button 'R' and data of B gain by the button 'B' respectively to center dots on the vectorscope. 6) Press the MEMORY button. 7) Press the END button.

3.3.3 Preset outdoor white balance

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
1	Outdoor R/B out	• EE	• Gray scale • White bal: OUTDOOR • Lens: with C12 + CC10B + CC025R filters  R MG Q 20% dG YL 10° 0° 10° 100% 75% 10% dG B G CY -I **Fig. 3-3-21** Outdoor R/B out	• Vectorscope	• 51 (OUTDOOR R OUT) • 52 (OUTDOOR B OUT) [E. VR]	Note: *Perform this adjustment by the channel of 51.* 1) Pick up the gray scale. 2) Set the white balance switch to OUTDOOR. 3) Attach C12 + CC10B + CC025R filters to the lens. 4) Set the channel of the E. VR adjuster to 51 and press the START button. 5) Adjust data of R gain by the button 'R' and data of B gain by the button 'B' respectively to center dots on the vectorscope. 6) Press the MEMORY button. 7) Press the END button.

3.3.4 Auto white balance

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
1	R/G, B/G offset setting	•EE	•White sensor: 3100 K, with CC15B filter •White bal: Auto	–	•40 (R/G, B/G OFFSET) [E. VR]	1) Apply 3100 K light to the white sensor which CC15B filter are attached to. 2) Set the white balance switch to AUTO. 3) Set the channel of the E. VR adjuster to '40', and press the MEMORY button.
2	Indoor R/G, B/G setting	•EE	•White sensor: 3100 K, with CC15B filter •White bal: Auto	–	•42 (INDOOR R/G) •43 (INDOOR B/G) [E. VR]	1) Apply 3100 K light to the white sensor which CC15B filter are attached to. 2) Set the white balance switch to AUTO. 3) Set the channel of the E. VR adjuster to '42', and press the MEMORY button. 4) Set the channel of the E. VR adjuster to '43', and press the MEMORY button.
3	G offset setting	•EE	•White sensor: 3100 K, with ND8 + ND8 filters •White bal: Auto	–	•48 (G OFFSET) [E. VR]	1) Apply 3100 K light to the white sensor which ND8 + ND8 filters are attached to. 2) Set the white balance switch to AUTO. 3) Set the channel of the E. VR adjuster to '48', and press the MEMORY button.
4	FL R/G, B/G setting	•EE	•White sensor: 3100 K, with C10 + CC25Y filters •White bal: Auto	–	•46 (FL R/G) •47 (FL B/G) [E. VR]	1) Apply 3100 K light to the white sensor which C10 + CC25Y filters are arrached to. 2) Set the white balance switch to AUTO. 3) Set the channel of the E. VR adjuster to '46', and press the MEMORY button. 4) Set the channel of the E. VR adjuster to '47', and press the MEMORY button.
5	Outdoor R/G, B/G setting	•EE	•White sensor: 3100 K, with C12 + CC10B + CC05G filters •White bal: Auto	–	•44 (OUTDOOR R/G) •45 (OUTDOOR B/G) [E. VR]	1) Apply 3100 K light to the white sensor which C12 + CC10B + CC05G filters is attached to. 2) Set the white balance switch to AUTO. 3) Set the channel of the E. VR adjuster to '44', and press the MEMORY button. 4) Set the channel of the E. VR adjuster to '45', and press the MEMORY button. 5) After storing all data, confirm that every value of the data is more than '80'.
6	R-Y/B-Y offset setting	•EE	•Gray scale •White bal: Auto	–	•49 (R-Y OFFSET -1) •4A (B-Y OFFSET -1) •4C (R-Y OFFSET -2) •4D (B-Y OFFSET -2) [E. VR]	1) Pick up the gray scale. 2) Set the white balance switch to AUTO. 3) Set the channel of the E. VR adjuster to '49', and press the MEMORY button. 4) Perform the same steps mentioned above for channels 4A, 4C and 4D respectively.

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
7	Y_L offset setting	●EE	● Iris: Closed ● White bal: Auto	—	● 4B (Y_L OFFSET -1) ● 4E (Y_L OFFSET -2) [E. VR]	1) Set the channel of the E. VR adjuster to 4B and press the START button. 2) Close the iris manually. 3) Set the white balance switch to AUTO. 4) Press the MEMORY button. 5) Set the channel of the E. VR adjuster to '4E' and press the MEMORY button. 6) Set to the AUTO IRIS mode and press the END button of E. VR adjuster.

3.4 AUTO FOCUS ADJUSTMENT

3.4.1 Connection for adjustment

- Set the test pattern 2.4 ± 0.06 m apart from the lens or focus the lens on an infinite object.

Connector	No.of pin	Connection
①	3	03 JACK CN2 ↔ 22 IMAGER CN201
②	8	02 A/V CN6 ↔ 21 VIDEO CN107
③	8	01 MAIN CN8 ↔ 23 CTL CN305
④	16	01 MAIN CN10 ↔ OPERATION UNIT
⑤	6	25 AF CN503 ↔ Zoom switch
⑥	7	28 C. SW CN701 ↔ 23 CTL CN306

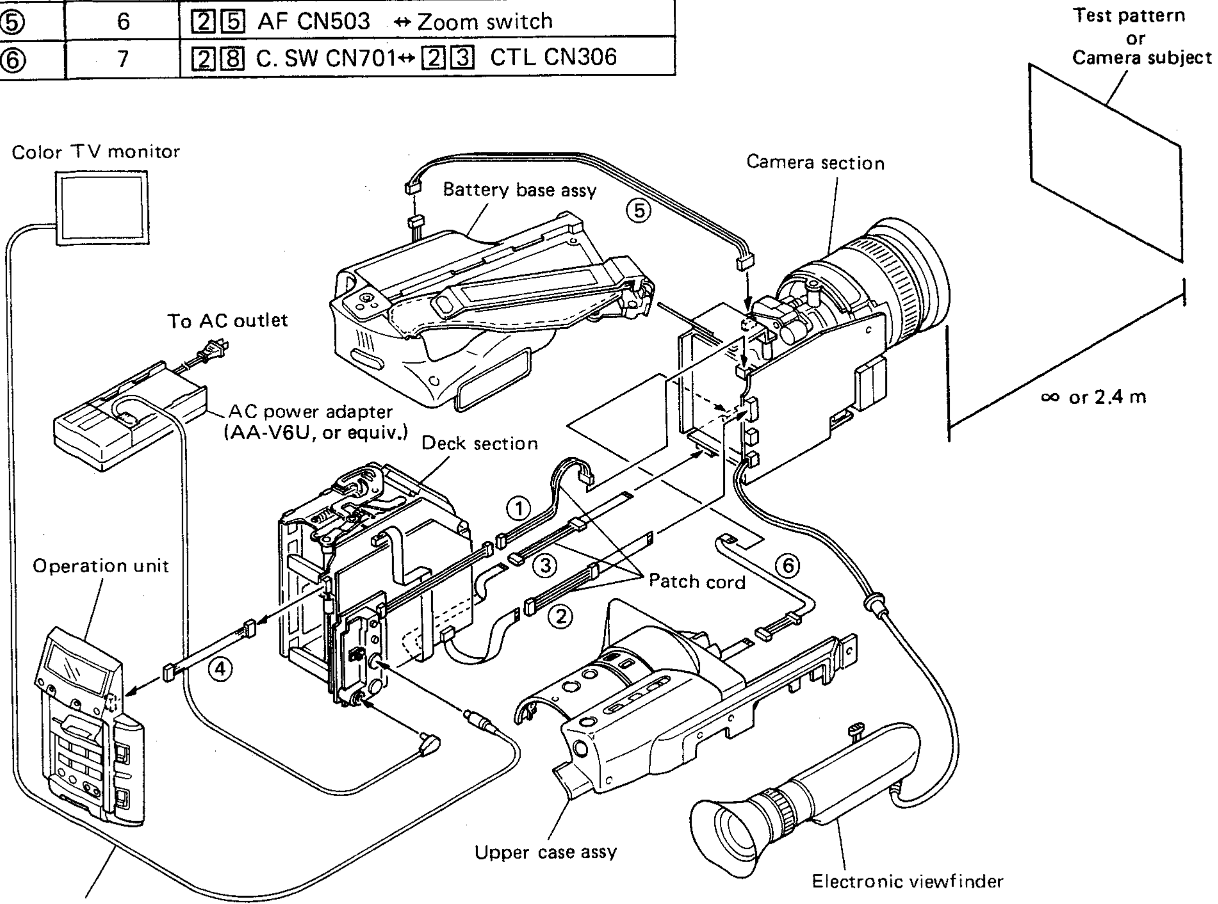

Test pattern
or
Camera subject
Color TV monitor
Camera section
Battery base assy
⑤
To AC outlet
∞ or 2.4 m
AC power adapter
(AA-V6U, or equiv.)
Deck section
①
Operation unit
③
Patch cord
⑥
②
④
Upper case assy
Electronic viewfinder
A/V output cable

Fig. 3-4-1 Connection for auto focus adjustment

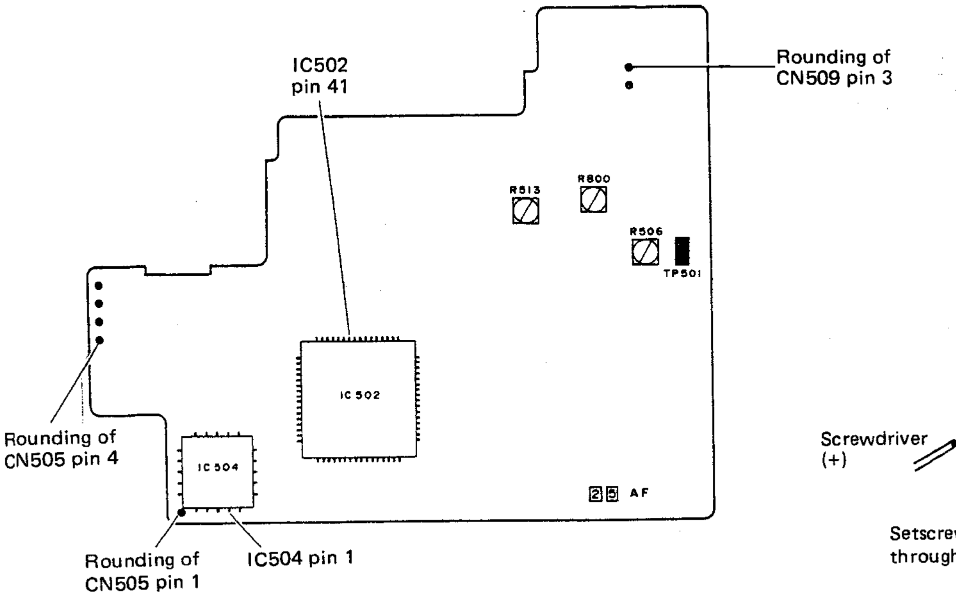

IC502
pin 41
Rounding of
CN509 pin 3
R513
R600
R506
TP501
IC 502
IC 504
25 AF
Rounding of
CN505 pin 4
Rounding of
CN505 pin 1
IC504 pin 1

Fig. 3-4-2 Parts location on AF board

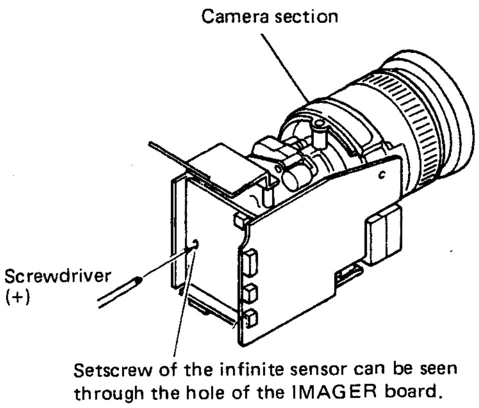
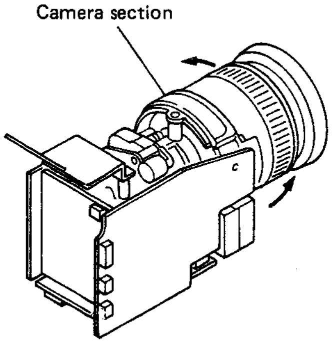

Camera section
Screwdriver
(+)
Setscrew of the infinite sensor can be seen
through the hole of the IMAGER board.

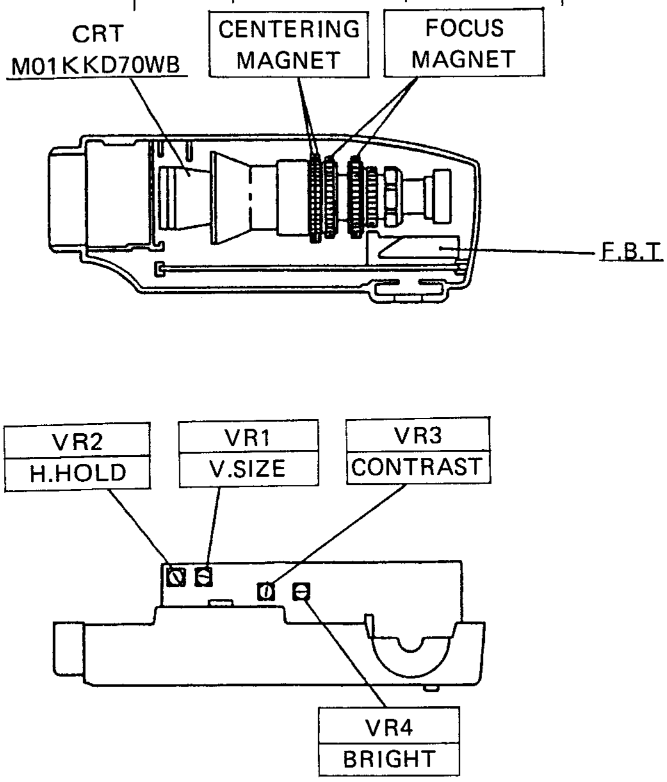
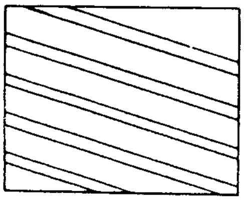
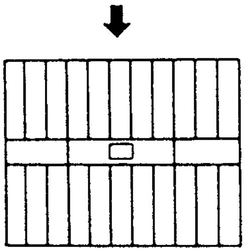
Fig. 3-4-3 Setscrew of infinite sensor

3.4.2 Adjustment

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
1	Confirmation	• EE	• Subject 80 m or more apart	•CN509 Pin 3 (PHOTO TR IN) [2][5] AF	–	1) Turn off the power and ground pin 41 of IC502. 2) Turn on the power and set the camera to the Rehearsal mode. Shooting a camera object 80 m or more apart from the camera, confirm that the subject is in focus and voltage at pin 3 of CN509 is 2.22 ± 0.05 V. 3) Shooting an object in a distance of 2–3 m by zooming from the TELE position to the WIDE position a few times, confirm the image which has no extreme out-focus points.
2A	Auto focus	• EE	•Subject 80 m or more apart •ND filter •Zoom SW: WIDE end • Focus: MANUAL	•CN509 Pin 3 (PHOTO TR IN) [2][5] AF	• Infinite sensor	1) Turn off the power and ground pin 41 of CN502. 2) Turn on the power and set the mode to Rehearsal. Shoot a camera subject 80 m or apart from it. 3) Set the focus switch to MANUAL. 4) Attach a proper ND filter(s) so that the iris is full open. 5) Set the zoom switch to the endmost of the WIDE side. 6) Observing a TV monitor, turn the manual focus ring to bring the subject into focus. 7) Adjust the setscrew of the infinite sensor so that voltage at pin 3 of CN509 is 2.22 ± 0.05 V.
2B	Easy auto focusing	• EE	•Subject in a distance of 2.4 ± 0.06 m •ND filter(s) •Zoom SW: WIDE end • Focus: MANUAL  **Fig. 3-4-4** Turning direction of focus ring	•CN509 Pin 3 (PHOTO TR IN) [2][5] AF	• Infinite sensor	1) Turn off the power and ground pin 41 of CN-502 and pin 1 of IC504. 2) Turn on the power and shoot an object 80 m or more apart in the Rehearsal mode. 3) Set the focus switch to MANUAL. 4) Attach proper ND filter(s) to the lens so that the iris is full open. 5) Set the zoom switch to the endmost of WIDE side. 6) Observing a TV monitor, turn the manual focus ring to bring the subject into focus. 7) When it is in focus, turn the manual focus ring in the direction of the arrow (Fig. 3-4-4) for 1 pulse (see Note). 8) Adjust the setscrew of the infinite sensor so that voltage at pin 3 of CN509 is 2.22 ± 0.05 V. **Note:** *To turn the manual focus ring for 1 pulse: Shortcircuit between pin 1 of CN505 and CH1 of an oscilloscope while pin 4 and CH2 respectively, and set the oscilloscope to dual-trace DC mode. As the manual focus ring is turned in the direction of the arrow, level of CH1 or CH2 varies from high to low or vice versa. This explains that the focus moves for 1 pulse.*

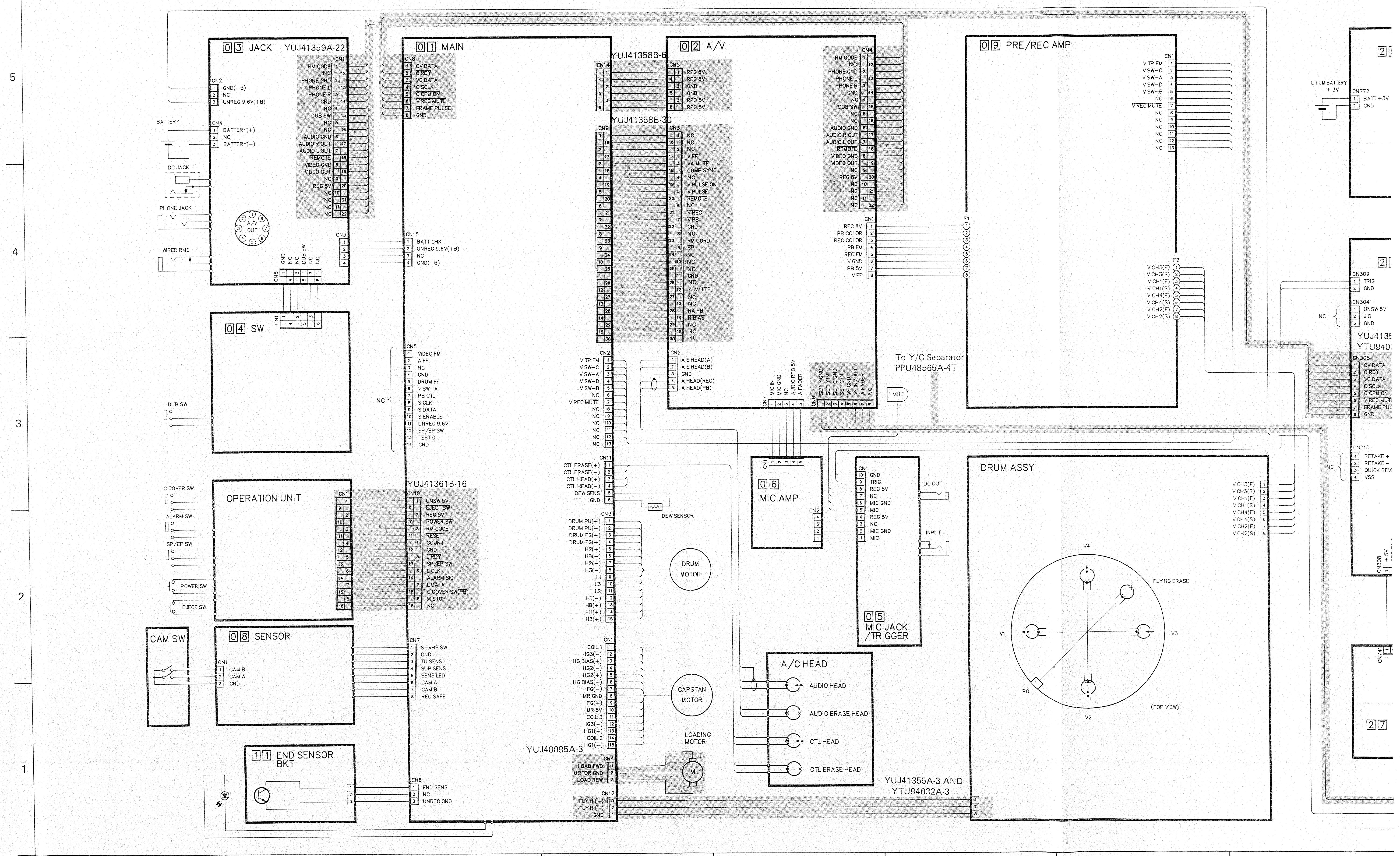
3.5 ELECTRONIC VIEWFINDER

Note: ***Be most careful of high voltage at the anode of CRT, HV module, etc.***

No.	Item		Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
1	Horizontal sync.  CRT M01KKD70WB CENTERING MAGNET FOCUS MAGNET F.B.T VR2 H.HOLD VR1 V.SIZE VR3 CONTRAST VR4 BRIGHT **Fig. 3-5-1** Electronic viewfinder	• EE	• Gray scale	• Viewfinder	• VR2 (H. HOLD) [5][0] VF	1) Observing image in the viewfinder screen, turn VR2 fully clockwise to make the picture unstable. 2) Gradually return VR2 counterclockwise until the picture becomes stable. At that time, mark the VR's position for further reference. 3) In the same manner as the above steps 1) and 2), turn VR2 clockwise and return it to mark a point where the picture becomes stable again. 4) Finally set VR2 to the midpoint of the two markings.  (a)  (b) • It is the correct setting position of VR2 that DC level of pin 12 of IC1 is 2.5 V (in Shuttle Search).
2	Vertical scanning	• EE	• Gray scale	• Viewfinder	• VR1 (V. SIZE) [5][0] VF	1) Observing image in the viewfinder, adjust VR1 for normal picture amplitude.
3	Centering	• EE	• Gray scale	• Viewfinder	• Centering magnet	1) Pick up the gray scale to locate it in the center of the TV monitor screen, and adjust the centering magnet so that the picked up gray scale pattern is positioned in the center of the viewfinder.
4	Focus	• EE	• Gray scale	• Viewfinder	• Focus magnet	1) Observing image in the viewfinder, adjust the focus magnet of the deflection yoke to obtain a clear image of the center of the gray scale.
5	Brightness	• EE	• Iris: Closed (with lens cap)	• Viewfinder	• VR4 (BRIGHT) [5][0] VF	1) Close the iris with the lens cap and adjust VR4 so that the CRT raster of the viewfinder is just barely visible.
6	Contrast	• EE	• Gray scale	• Viewfinder	• VR3 (CONT) [5][0] VF	1) Observing image in the viewfinder, adjust VR3 so that gradation of the gray scale becomes the best.

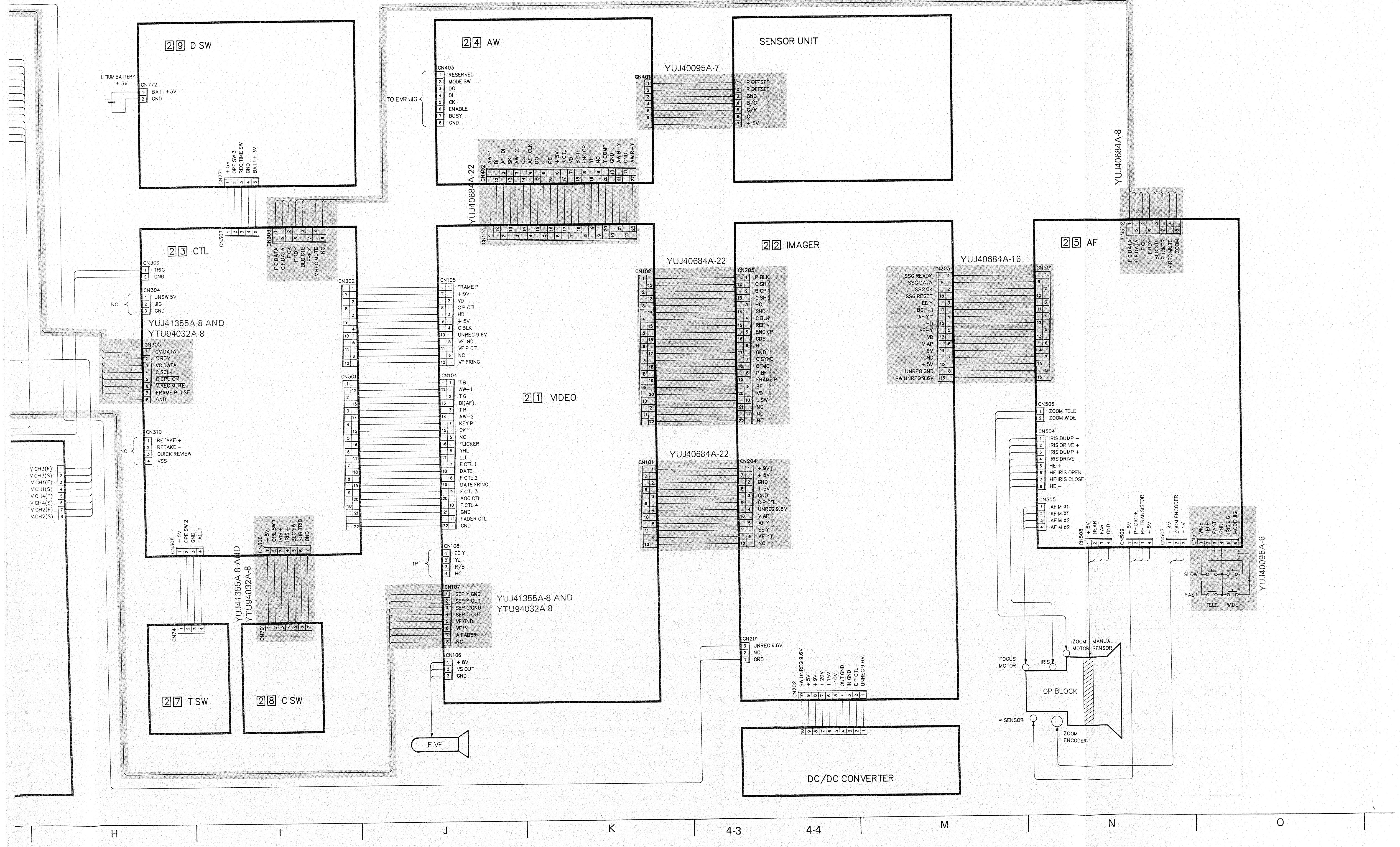
SECTION 4
OVERALL WIRING AND BLOCK DIAGRAMS

4.1 OVERALL WIRING


03 JACK YUJ41359A-22
01 MAIN
02 A/V
09 PRE/REC AMP
04 SW
OPERATION UNIT
CAM SW
08 SENSOR
11 END SENSOR BKT
06 MIC AMP
05 MIC JACK /TRIGGER
A/C HEAD
DRUM ASSY
YUJ41358B-6
YUJ41358B-30
YUJ41361B-16
YUJ40095A-3
YUJ41355A-3 AND YTU94032A-3
To Y/C Separator PPU48565A-4T
BATTERY
DC JACK
PHONE JACK
WIRED RMC
A/V OUT
DUB SW
C COVER SW
ALARM SW
SP/EP SW
POWER SW
EJECT SW
DEW SENSOR
DRUM MOTOR
CAPSTAN MOTOR
LOADING MOTOR
MIC
DC OUT
INPUT
AUDIO HEAD
AUDIO ERASE HEAD
CTL HEAD
CTL ERASE HEAD
FLYING ERASE
V1
V2
V3
V4
PG
(TOP VIEW)
LITIUM BATTERY +3V
CN772 BATT +3V GND
CN309 TRIG GND
CN304 UNSW 5V JIG GND
CN305 CV DATA C RDY VC DATA C SCLK C CPU ON V REC MUTE FRAME PULSE GND
CN310 RETAKE + RETAKE − QUICK REV VSS
CN308 +5V
CN741
NC
YUJ4135
YTU940
27
CN8 CV DATA C RDY VC DATA C SCLK C CPU ON V REC MUTE FRAME PULSE GND
CN2 GND(−B) NC UNREG 9.6V(+B)
CN4 BATTERY(+) NC BATTERY(−)
CN1 RM CODE NC PHONE GND PHONE L PHONE R GND NC DUB SW NC NC AUDIO GND AUDIO R OUT AUDIO L OUT REMOTE VIDEO GND VIDEO OUT NC REG 8V NC NC NC NC
CN3
CN5 GND NC NC DUB SW NC NC
CN15 BATT CHK UNREG 9.6V(+B) NC GND(−B)
CN5 VIDEO FM A FF NC GND DRUM FF V SW−A PB CTL S CLK S DATA S ENABLE UNREG 9.6V SP/EP SW TEST 0 GND
CN10 UNSW 5V EJECT SW REG 5V POWER SW RM CODE RESET COUNT GND L RDY SP/EP SW L CLK ALARM SIG L DATA C COVER SW(PB) M STOP NC
CN7 S−VHS SW GND TU SENS SUP SENS SENS LED CAM A CAM B REC SAFE
CN1 CAM B CAM A GND
CN6 END SENS NC UNREG GND
CN14
CN9
CN2 V TP FM V SW−C V SW−A V SW−D V SW−B NC V REC MUTE NC NC NC NC NC NC
CN11 CTL ERASE(+) CTL ERASE(−) CTL HEAD(+) CTL HEAD(−) DEW SENS GND
CN3 DRUM PU(+) DRUM PU(−) DRUM FG(−) DRUM FG(+) H2(+) HB(−) H2(−) H3(−) L1 L3 L2 H1(−) HB(+) H1(+) H3(+)
CN1 COIL 1 HG3(−) HG BIAS(+) HG2(−) HG2(+) HG BIAS(−) FG(−) MR GND FG(+) MR 5V COIL 3 HG3(+) HG1(+) COIL 2 HG1(−)
CN4 LOAD FWD MOTOR GND LOAD REW
CN12 FLY H (+) FLY H (−) GND
CN5 REG 8V REG 8V GND GND REG 5V REG 5V
CN3 NC NC NC V FF VA MUTE COMP SYNC NC V PULSE ON V PULSE REMOTE NC V REC V PB GND NC RM CORD SP NC NC NC GND NC A MUTE NC NC NA PB N BIAS NC NC NC
CN4 RM CODE NC PHONE GND PHONE L PHONE R GND NC DUB SW NC NC AUDIO GND AUDIO R OUT AUDIO L OUT REMOTE VIDEO GND VIDEO OUT NC REG 8V NC NC NC NC
CN1 REC 8V PB COLOR REC COLOR PB FM REC FM V GND PB 5V V FF
CN2 A E HEAD(A) A E HEAD(B) GND A HEAD(REC) A HEAD(PB)
CN7 MIC IN MIC GND NC AUDIO REG 5V A FADER
CN6 SEP Y GND SEP Y IN SEP C GND SEP C IN VF GND VF IN/OUT A FADER NC
F1
F2
CN1 V TP FM V SW−C V SW−A V SW−D V SW−B NC V REC MUTE NC NC NC NC NC NC
V CH3(F) V CH3(S) V CH1(F) V CH1(S) V CH4(F) V CH4(S) V CH2(F) V CH2(S)
CN1
CN2
CN1 GND TRIG REG 5V NC MIC GND MIC REG 5V NC MIC GND MIC
A B C D E F G H
1 2 3 4 5 6

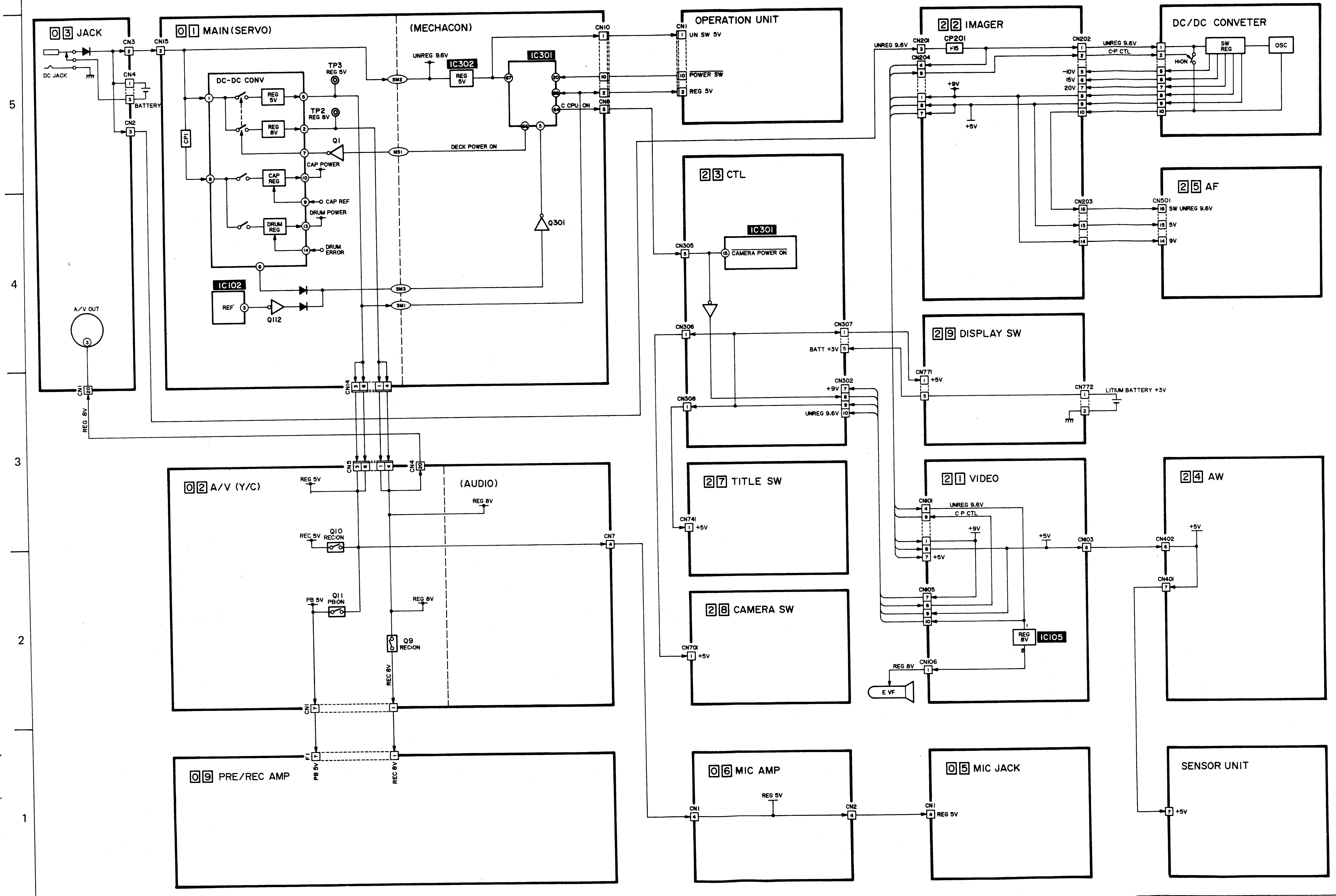
Patchcords

Patchcords are available for blue shaded portions of the overall wiring.



29 D SW
LITIUM BATTERY + 3V
CN772
BATT +3V
GND
CN771
+ 5V
OPE SW 3
REC TIME SW
GND
BATT + 3V
24 AW
CN403
RESERVED
MODE SW
DO
DI
CK
ENABLE
BUSY
GND
TO EVR JIG
CN401
YUJ40095A-7
SENSOR UNIT
B OFFSET
R OFFSET
GND
B/G
G/R
G
+ 5V
CN402
AW-1
DI
AF-DI
SK
AW-2
CS
AF-CLK
DO
G
PE
+ 5V
R CTL
VD
B CTL
ENC CP
YL
NC
Y COMP
GND
AWB-Y
GND
AWR-Y
YUJ40684A-22
YUJ40684A-8
23 CTL
CN307
CN303
F C DATA
C F DATA
F CK
F RDY
BLC CTL
TRICK
V REC MUTE
NC
CN309
TRIG
GND
CN304
UNSW 5V
JIG
GND
NC
YUJ41355A-8 AND
YTU94032A-8
CN305
CV DATA
C RDY
VC DATA
C SCLK
C CPU ON
V REC MUTE
FRAME PULSE
GND
CN310
RETAKE +
RETAKE −
QUICK REVIEW
VSS
CN302
CN301
CN308
+ 5V
OPE SW 2
GND
TALLY
CN306
+ 5V
OPE SW1
IRIS +
IRIS −
BLC SW
SUB TRIG
GND
YUJ41355A-8 AND
YTU94032A-8
CN741
CN701
27 T SW
28 C SW
V CH3(F)
V CH3(S)
V CH1(F)
V CH1(S)
V CH4(F)
V CH4(S)
V CH2(F)
V CH2(S)
21 VIDEO
CN103
CN105
FRAME P
+ 9V
VD
C P CTL
HD
+ 5V
C BLK
UNREG 9.6V
VF IND
VF P CTL
NC
VF FRING
CN104
T B
AW-1
T C
DI(AF)
T R
AW-2
KEY P
CK
NC
FLICKER
YHL
LLL
F CTL 1
DATE
F CTL 2
DATE FRING
F CTL 3
AGC CTL
F CTL 4
GND
FADER CTL
GND
CN108
EE Y
YL
R/B
HG
TP
CN107
SEP Y GND
SEP Y OUT
SEP C GND
SEP C OUT
VF GND
VF IN
A FADER
NC
YUJ41355A-8 AND
YTU94032A-8
CN106
+ 8V
VS OUT
GND
E VF
CN102
YUJ40684A-22
CN101
YUJ40684A-22
22 IMAGER
CN205
P BLK
C SH 1
B CP 1
C SH 2
HG
GND
C BLK
REF V
ENC CP
CDS
HD
GND
C SYNC
CFMO
P BF
FRAME P
BF
VD
L SW
NC
NC
NC
CN204
+ 9V
+ 5V
GND
+ 5V
GND
C P CTL
UNREG 9.6V
V AP
+ 5V
AF Y
EE Y
AF YT
NC
CN201
UNREG 9.6V
NC
GND
CN202
SW UNREG 9.6V
+ 5V
+ 9V
+ 20V
+ 15V
- 10V
OUT GND
IN GND
C P CTL
UNREG 9.6V
DC/DC CONVERTER
CN203
SSG READY
SSG DATA
SSG CK
SSG RESET
EE Y
BCP-1
AF YT
HD
AF-Y
VD
V AP
+ 9V
GND
+ 5V
UNREG GND
SW UNREG 9.6V
YUJ40684A-16
25 AF
CN502
F C DATA
C F DATA
F CK
F RDY
BLC CTL
FLICKER
V REC MUTE
ZOOM
CN501
CN506
ZOOM TELE
ZOOM WIDE
CN504
IRIS DUMP −
IRIS DRIVE +
IRIS DUMP +
IRIS DRIVE −
HE +
HE IRIS OPEN
HE IRIS CLOSE
HE −
CN505
AF M ø1
AF M ø1
AF M ø2
AF M ø2
CN508
+ 5V
NEAR
FAR
GND
CN509
+ 5V
PH DIODE
PH TRANSISTOR
+ 5V
CN507
+ 4V
ZOOM ENCODER
+ 1V
CN503
MDE
TELE
FAST
GND
IRIS JIG
MODE JIG
YUJ40095A-6
SLOW
FAST
TELE
WIDE
FOCUS MOTOR
IRIS
ZOOM MOTOR
MANUAL SENSOR
OP BLOCK
∞ SENSOR
ZOOM ENCODER
H
I
J
K
4-3
4-4
M
N
O

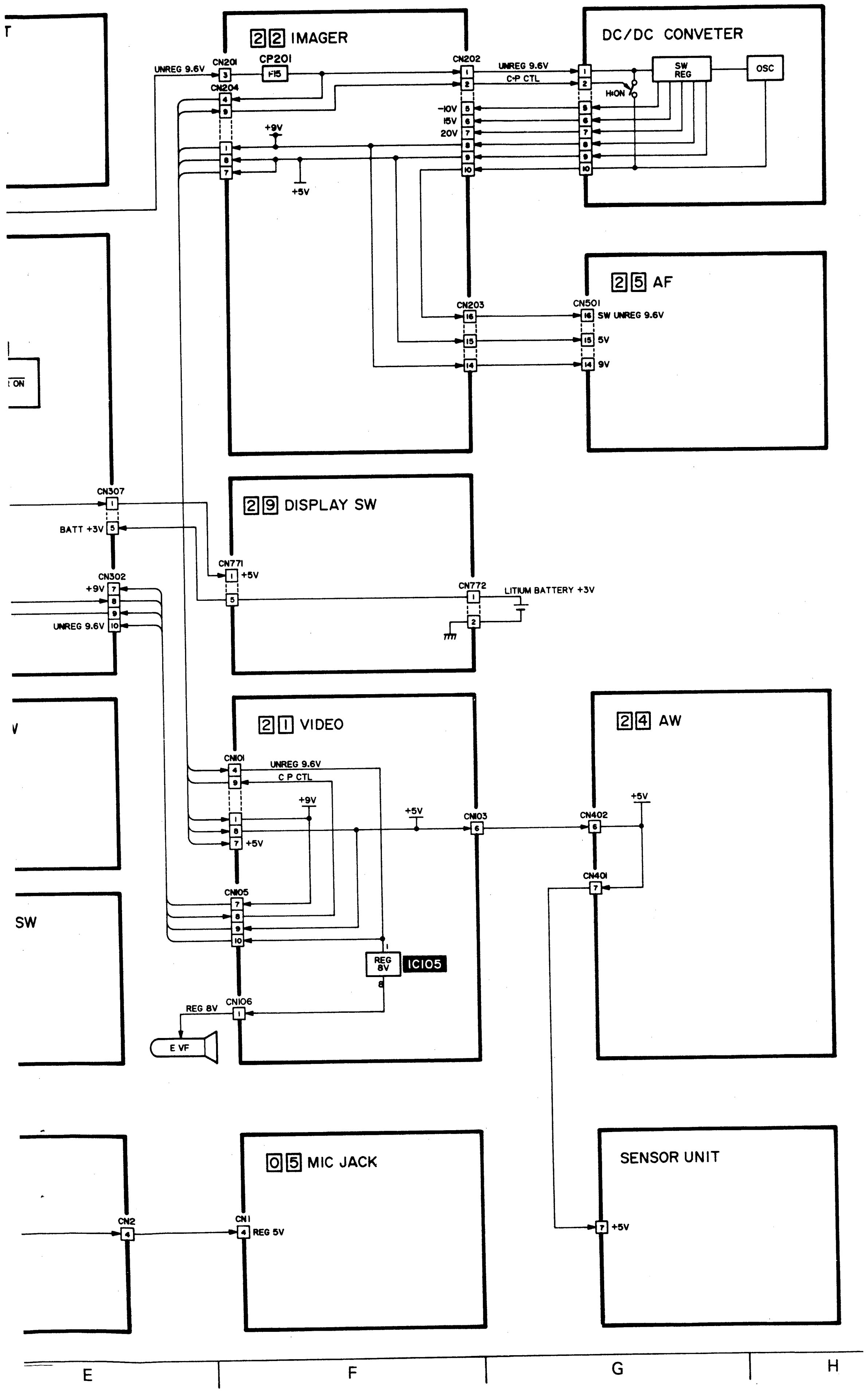
4.2 POWER SYSTEM BLOCK DIAGRAM


03 JACK
DC JACK
CN3
CN4
BATTERY
CN2
A/V OUT
CN1
REG 8V
01 MAIN (SERVO)
(MECHACON)
CN15
CP1
DC-DC CONV
REG 5V
REG 8V
CAP REG
DRUM REG
CAP POWER
CAP REF
DRUM POWER
DRUM ERROR
TP3 REG 5V
TP2 REG 8V
Q1
DECK POWER ON
UNREG 9.6V
IC302
REG 5V
IC301
C CPU ON
CN10
CN8
Q301
IC102
REF
Q112
SM1
SM2
SM3
MS1
CN14
OPERATION UNIT
CN1
UN SW 5V
POWER SW
REG 5V
23 CTL
IC301
CAMERA POWER ON
CN305
CN306
CN307
BATT +3V
CN302
+9V
UNREG 9.6V
CN308
22 IMAGER
CP201
F15
CN201
CN204
CN202
CN203
+9V
+5V
-10V
15V
20V
UNREG 9.6V
C-P CTL
DC/DC CONVETER
SW REG
OSC
H:ON
25 AF
CN501
SW UNREG 9.6V
5V
9V
29 DISPLAY SW
CN771
+5V
CN772
LITIUM BATTERY +3V
02 A/V (Y/C)
(AUDIO)
CN5
CN4
REG 5V
REG 8V
REC 5V
Q10 REC:ON
CN7
PB 5V
Q11 PB:ON
REG 8V
Q9 REC:ON
REC 8V
CN1
27 TITLE SW
CN741
+5V
28 CAMERA SW
CN701
+5V
21 VIDEO
CN101
UNREG 9.6V
C P CTL
+9V
+5V
CN103
CN105
REG 8V
IC105
CN106
REG 8V
E VF
24 AW
CN402
+5V
CN401
09 PRE/REC AMP
F1
PB 5V
REC 8V
06 MIC AMP
CN1
REG 5V
CN2
05 MIC JACK
CN1
REG 5V
SENSOR UNIT
+5V
6
5
4
3
2
1
A
B
C
E
F
G
H

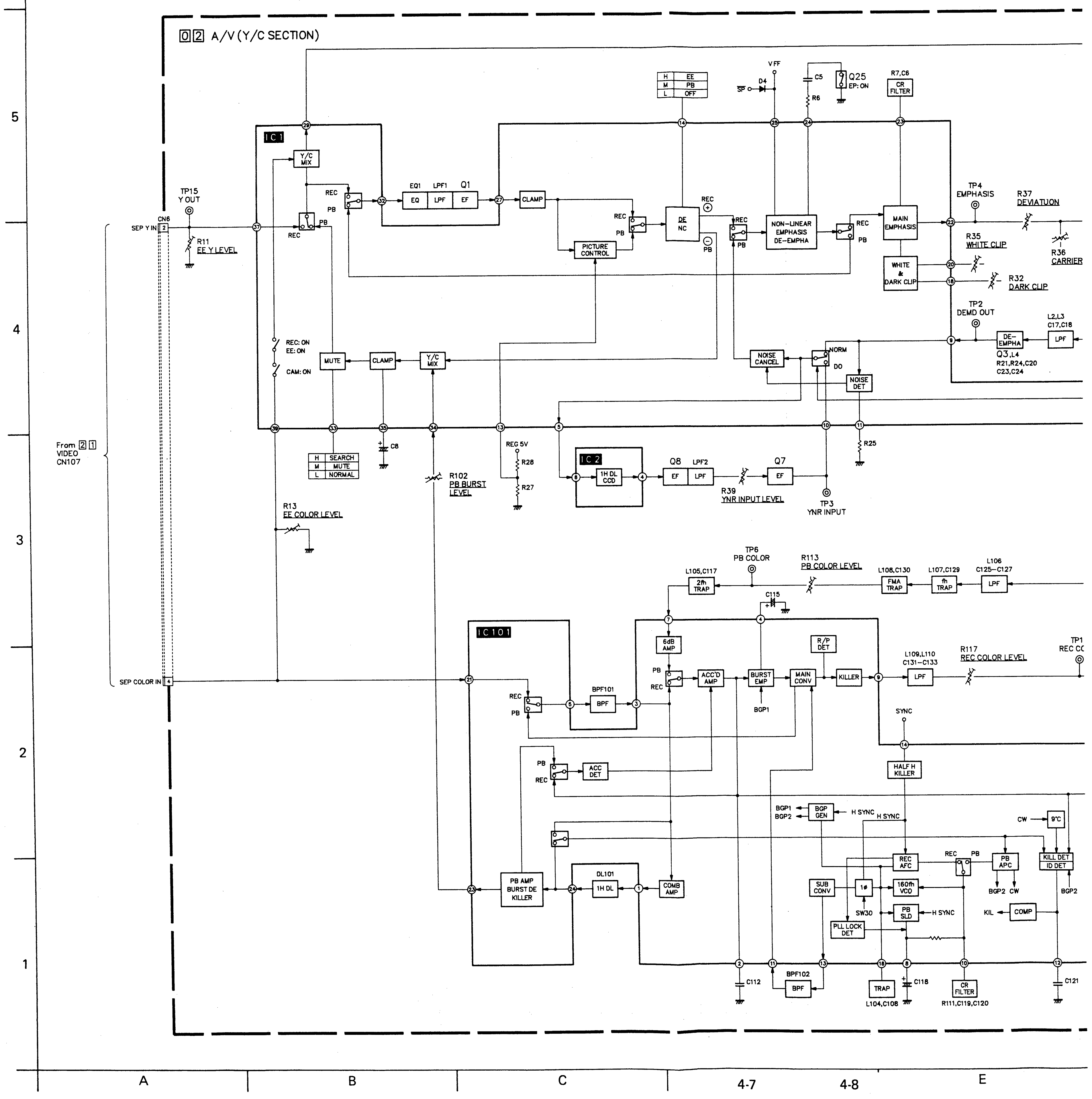
4.3 Y

From 21 VIDEO CN107

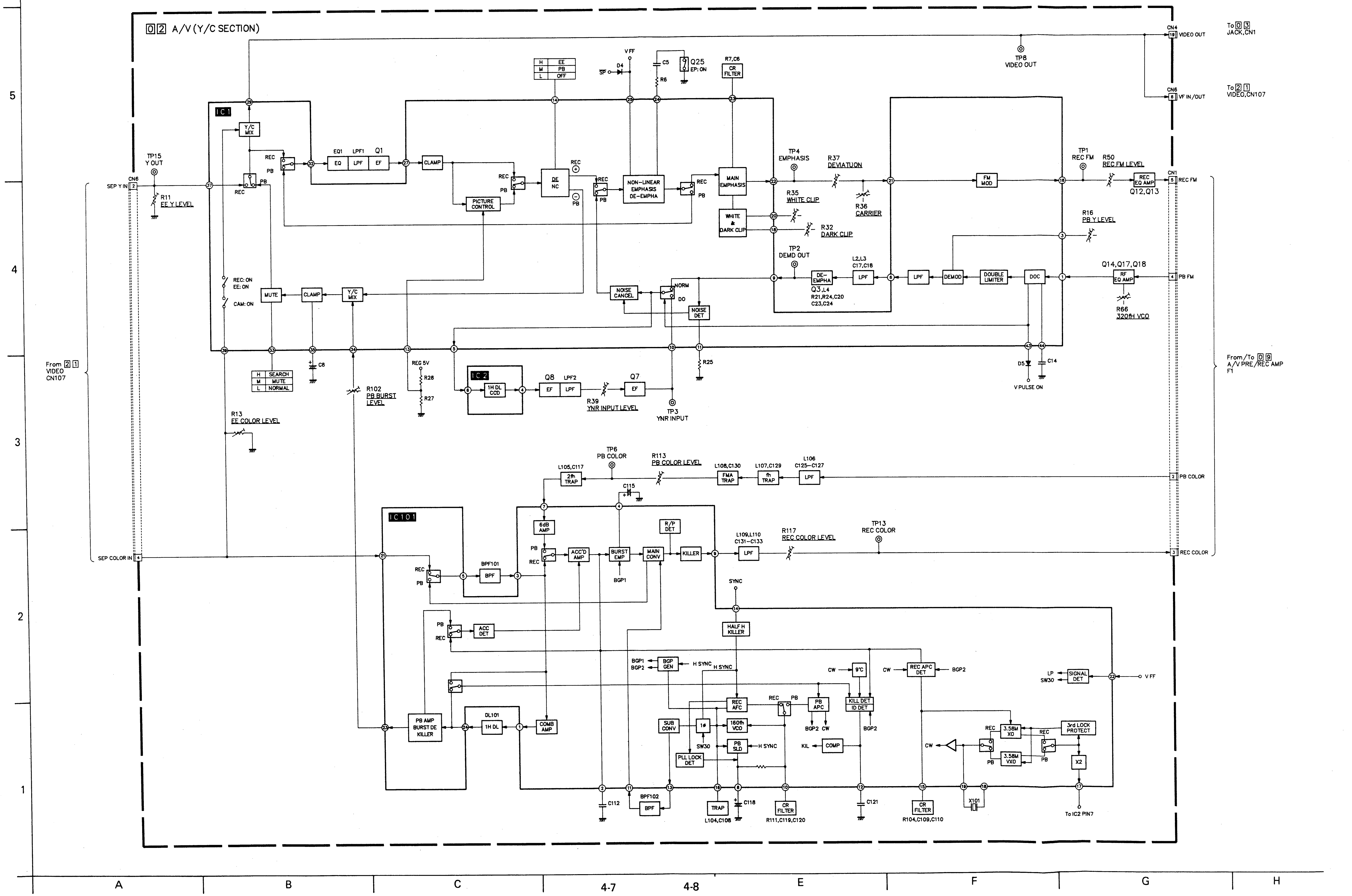
SEI


22 IMAGER
CP201
F15
CN201
CN202
CN203
CN204
UNREG 9.6V
C-P CTL
-10V
15V
20V
+9V
+5V
DC/DC CONVETER
SW REG
OSC
H:ON
25 AF
CN501
SW UNREG 9.6V
5V
9V
29 DISPLAY SW
CN307
BATT +3V
CN302
CN771
CN772
LITIUM BATTERY +3V
21 VIDEO
CN101
CN103
CN105
CN106
REG 8V
IC105
REG 8V
E VF
24 AW
CN402
CN401
05 MIC JACK
CN2
CN1
REG 5V
SENSOR UNIT
SW
E
F
G
H

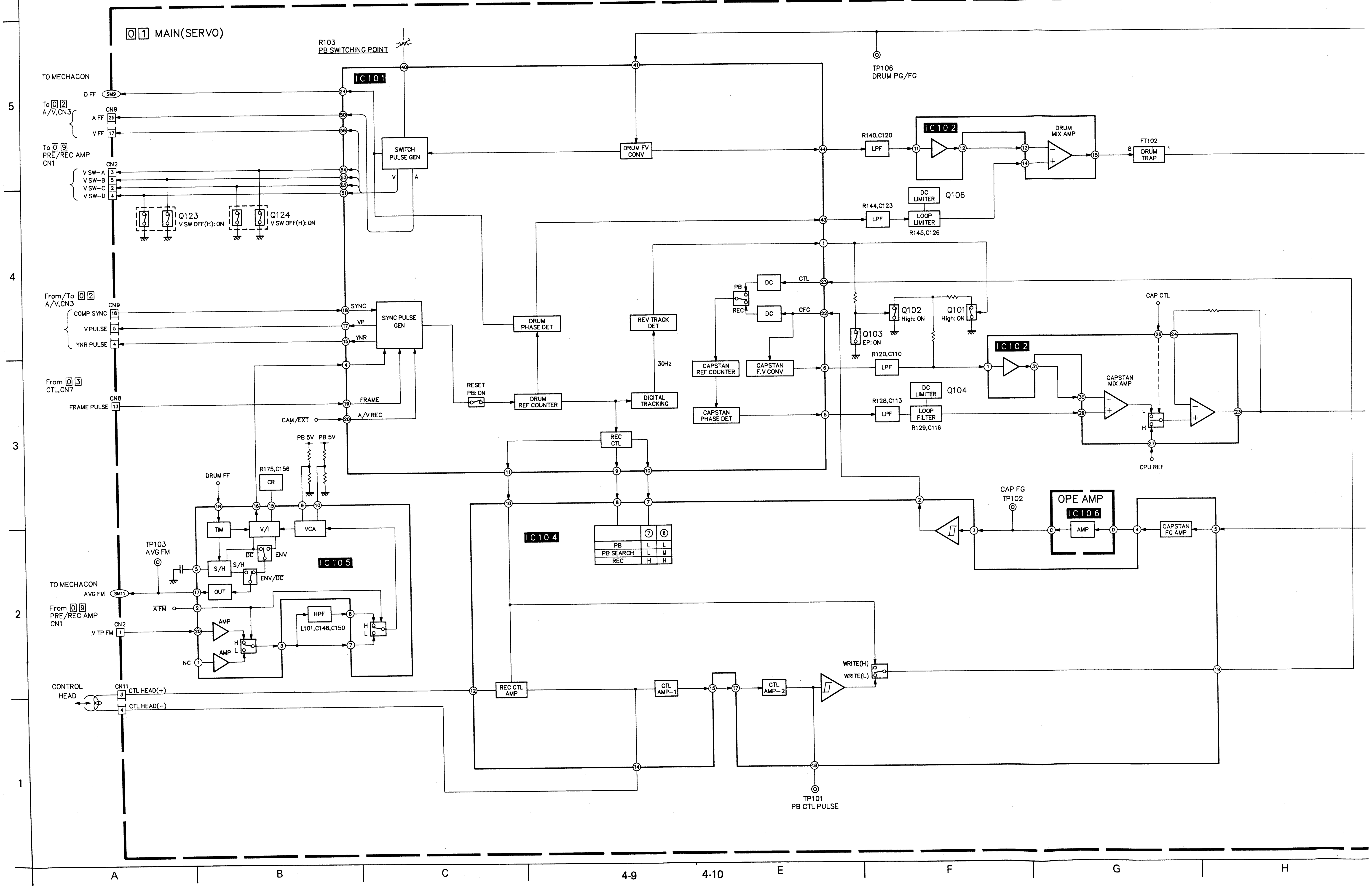
4.3 Y/C BLOCK DIAGRAM

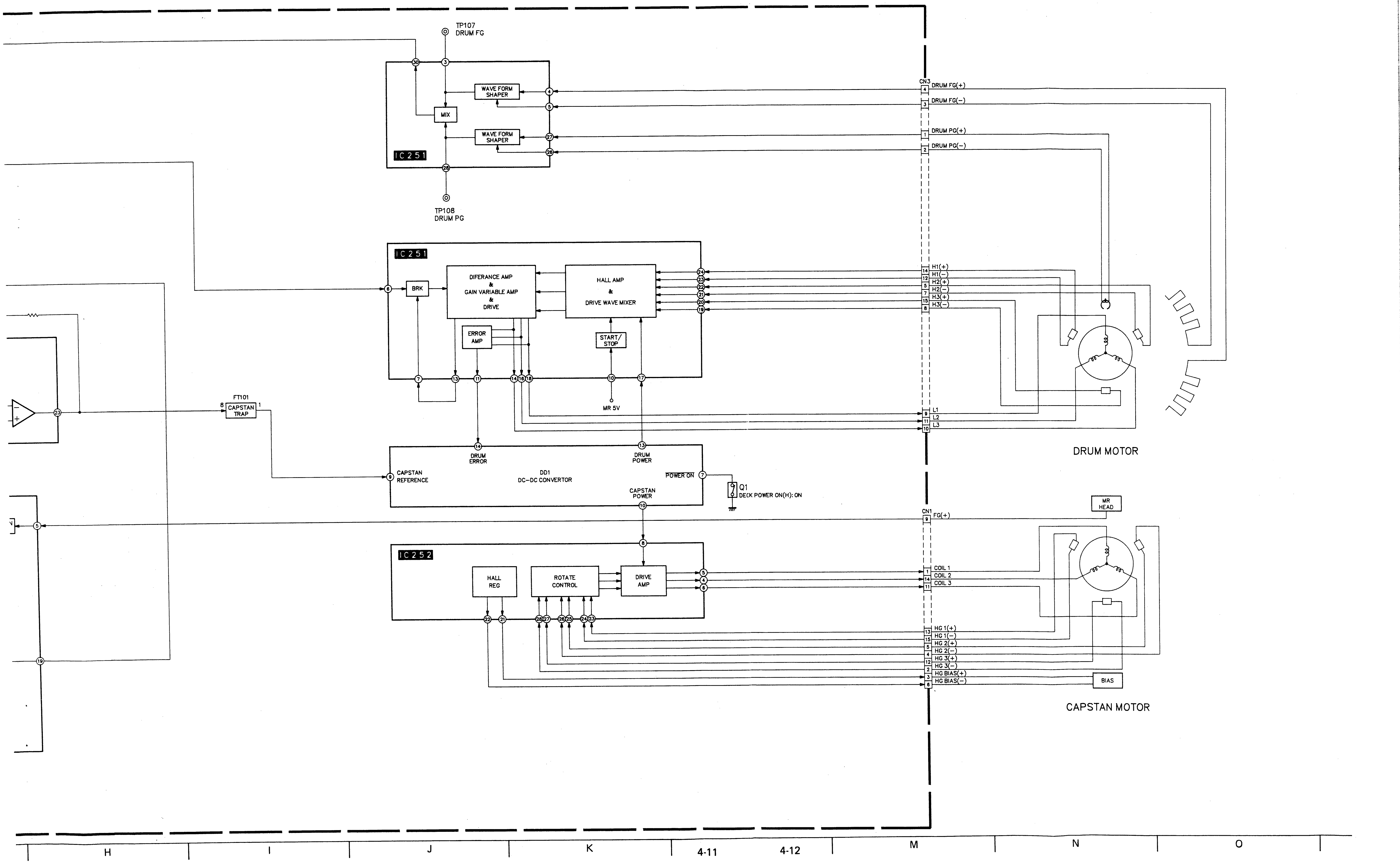

6
5
4
3
2
1
02 A/V (Y/C SECTION)
IC1
IC2
IC101
TP15 Y OUT
SEP Y IN
CN6
R11 EE Y LEVEL
Y/C MIX
REC
PB
EQ1
LPF1
Q1
EQ
LPF
EF
CLAMP
PICTURE CONTROL
DE NC
NON-LINEAR EMPHASIS DE-EMPHA
MAIN EMPHASIS
WHITE & DARK CLIP
H EE
M PB
L OFF
VFF
D4
SP
C5
R6
Q25 EP: ON
R7,C6 CR FILTER
TP4 EMPHASIS
R37 DEVIATUON
R35 WHITE CLIP
R36 CARRIER
R32 DARK CLIP
TP2 DEMD OUT
DE-EMPHA
LPF
L2,L3 C17,C18
Q3,L4 R21,R24,C20 C23,C24
REC: ON EE: ON
CAM: ON
MUTE
CLAMP
Y/C MIX
NOISE CANCEL
NORM
DO
NOISE DET
H SEARCH
M MUTE
L NORMAL
C8
R102 PB BURST LEVEL
REG 5V
R28
R27
1H DL CCD
Q8
LPF2
Q7
EF
LPF
R39 YNR INPUT LEVEL
TP3 YNR INPUT
R25
R13 EE COLOR LEVEL
From 21 VIDEO CN107
SEP COLOR IN
TP6 PB COLOR
R113 PB COLOR LEVEL
L105,C117 2fh TRAP
L108,C130 FMA TRAP
L107,C129 fh TRAP
L106 C125-C127 LPF
C115
6dB AMP
R/P DET
BPF101 BPF
ACC'D AMP
BURST EMP
MAIN CONV
KILLER
BGP1
L109,L110 C131-C133 LPF
R117 REC COLOR LEVEL
TP1 REC CC
SYNC
HALF H KILLER
ACC DET
BGP1
BGP2
BGP GEN
H SYNC
CW
9°C
REC AFC
PB APC
KILL DET ID DET
BGP2 CW
BGP2
PB AMP BURST DE KILLER
DL101 1H DL
COMB AMP
SUB CONV
160fh VCO
PB SLD
KIL
COMP
SW30
PLL LOCK DET
C112
BPF102 BPF
TRAP L104,C108
C118
CR FILTER R111,C119,C120
C121
A
B
C
E

4.3 Y/C BLOCK DIAGRAM

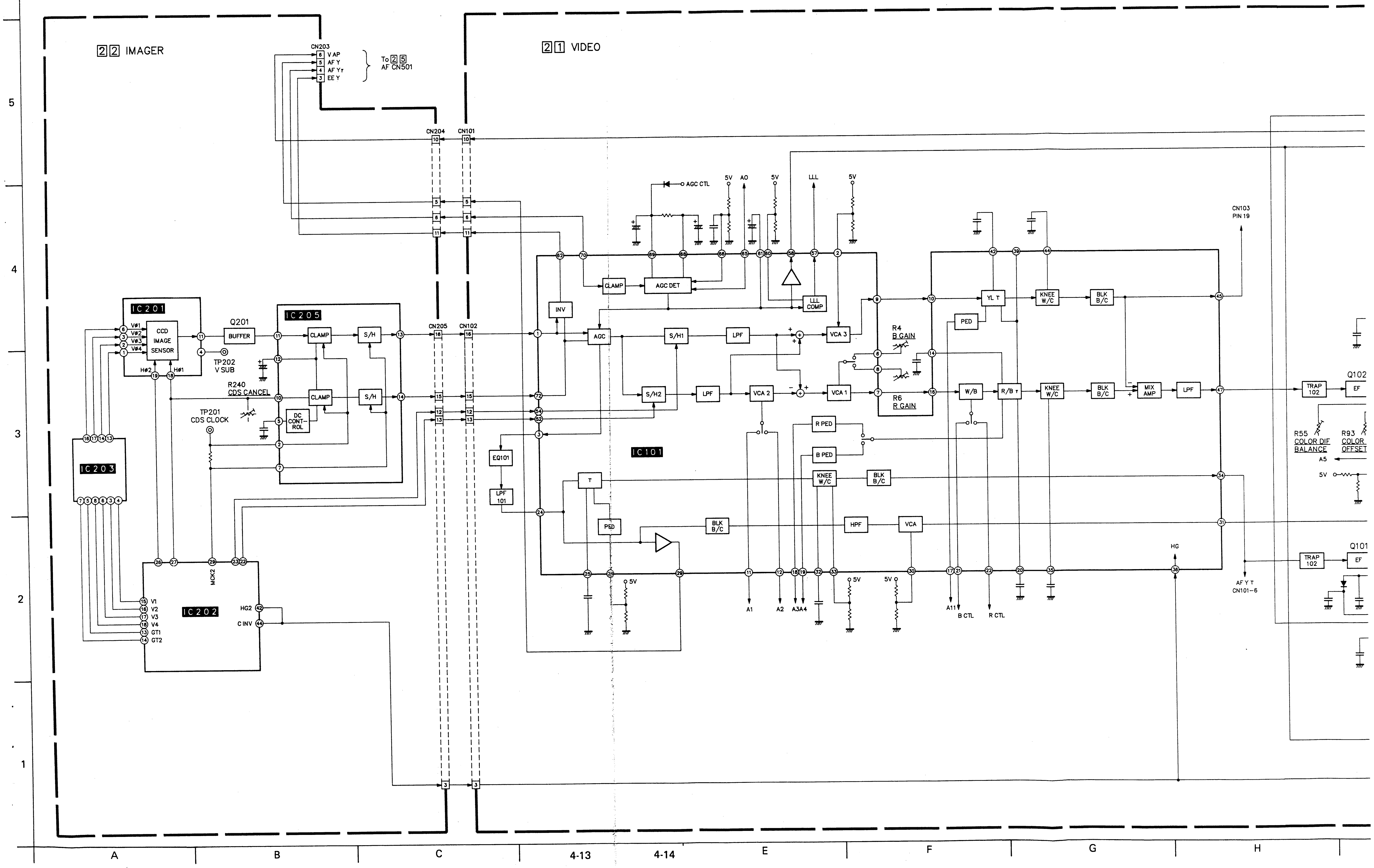

02 A/V (Y/C SECTION)
IC1
IC2
IC101
CN6
SEP Y IN
SEP COLOR IN
TP15 Y OUT
R11 EE Y LEVEL
Y/C MIX
REC
PB
EQ1 LPF1 Q1
EQ LPF EF
CLAMP
PICTURE CONTROL
DE NC
H EE
M PB
L OFF
VFF
D4
C5
R6
Q25 EP: ON
R7,C6 CR FILTER
NON-LINEAR EMPHASIS DE-EMPHA
MAIN EMPHASIS
WHITE & DARK CLIP
TP4 EMPHASIS
R37 DEVIATUON
R35 WHITE CLIP
R36 CARRIER
R32 DARK CLIP
FM MOD
TP1 REC FM
R50 REC FM LEVEL
REC EQ AMP
Q12,Q13
R16 PB Y LEVEL
TP2 DEMD OUT
DE-EMPHA
Q3,L4 R21,R24,C20 C23,C24
L2,L3 C17,C18
LPF
DEMOD
DOUBLE LIMITER
DOC
Q14,Q17,Q18
RF EQ AMP
R66 320fH VCO
TP8 VIDEO OUT
CN4 VIDEO OUT
To 03 JACK,CN1
CN6 VF IN/OUT
To 21 VIDEO,CN107
CN1 REC FM
PB FM
PB COLOR
REC COLOR
From/To 09 A/V PRE/REC AMP F1
From 21 VIDEO CN107
REC: ON EE: ON CAM: ON
MUTE
H SEARCH
M MUTE
L NORMAL
C8
NOISE CANCEL
NORM DO
NOISE DET
R25
D5
C14
V PULSE ON
REG 5V R28 R27
1H DL CCD
Q8 LPF2
EF LPF
R39 YNR INPUT LEVEL
Q7 EF
TP3 YNR INPUT
R102 PB BURST LEVEL
R13 EE COLOR LEVEL
TP6 PB COLOR
R113 PB COLOR LEVEL
L105,C117 2fH TRAP
L108,C130 FMA TRAP
L107,C129 fH TRAP
L106 C125–C127 LPF
C115
6dB AMP
ACC'D AMP
BURST EMP
MAIN CONV
R/P DET
KILLER
BGP1
BPF101 BPF
L109,L110 C131–C133 LPF
R117 REC COLOR LEVEL
TP13 REC COLOR
SYNC
HALF H KILLER
ACC DET
BGP1 BGP2 BGP GEN H SYNC
CW 9°C
CW REC APC DET BGP2
LP SW30 SIGNAL DET VFF
REC AFC
PB APC BGP2 CW
KILL DET ID DET BGP2
SUB CONV
1φ
160fH VCO
SW30
PB SLD H SYNC
PLL LOCK DET
KIL COMP
CW
3.58M XO
3.58M VXO
3rd LOCK PROTECT
X2
PB AMP BURST DE KILLER
DL101 1H DL
COMB AMP
C112
BPF102 BPF
TRAP L104,C108
C118
CR FILTER R111,C119,C120
C121
CR FILTER R104,C109,C110
X101
To IC2 PIN7
1 2 3 4 5
A B C D E F G H

4.4 SERVO BLOCK DIAGRAM

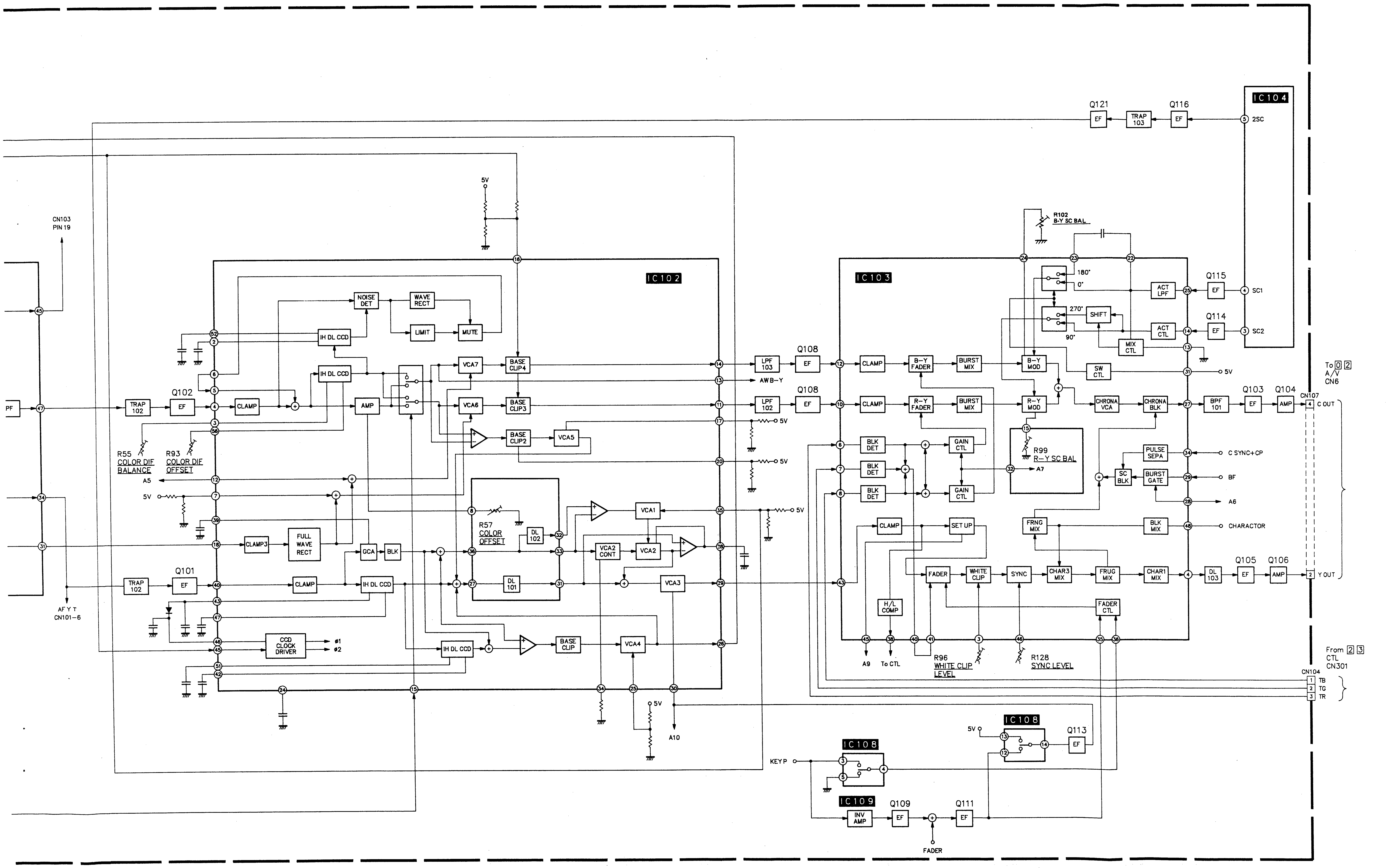

01 MAIN(SERVO)
R103
PB SWITCHING POINT
TP106
DRUM PG/FG
IC101
IC102
IC104
IC105
OPE AMP
IC106
TO MECHACON
D FF
SM9
To 02
A/V,CN3
CN9
A FF
V FF
To 09
PRE/REC AMP
CN1
CN2
V SW-A
V SW-B
V SW-C
V SW-D
Q123
V SW OFF(H): ON
Q124
V SW OFF(H): ON
SWITCH
PULSE GEN
DRUM FV
CONV
R140,C120
LPF
DRUM
MIX AMP
FT102
DRUM
TRAP
R144,C123
DC
LIMITER
Q106
LOOP
LIMITER
R145,C126
From/To 02
A/V,CN3
COMP SYNC
V PULSE
YNR PULSE
SYNC
VP
YNR
SYNC PULSE
GEN
From 03
CTL,CN7
CN8
FRAME PULSE
FRAME
CAM/EXT
A/V REC
RESET
PB: ON
DRUM
PHASE DET
DRUM
REF COUNTER
REV TRACK
DET
30Hz
DIGITAL
TRACKING
REC
CTL
CTL
CFG
PB
REC
DC
CAPSTAN
REF COUNTER
CAPSTAN
F.V CONV
CAPSTAN
PHASE DET
Q102
High: ON
Q101
High: ON
Q103
EP: ON
R120,C110
R128,C113
Q104
LOOP
FILTER
R129,C116
CAP CTL
CAPSTAN
MIX AMP
CPU REF
PB 5V
R175,C156
CR
DRUM FF
TIM
V/I
VCA
S/H
DC
ENV
ENV/DC
OUT
TP103
AVG FM
TO MECHACON
AVG FM
SM11
AFM
From 09
PRE/REC AMP
CN1
V TP FM
AMP
HPF
L101,C148,C150
NC
CAP FG
TP102
AMP
CAPSTAN
FG AMP
PB | ⑦ L | ⑧ L
PB SEARCH | ⑦ L | ⑧ M
REC | ⑦ H | ⑧ H
WRITE(H)
WRITE(L)
CONTROL
HEAD
CN11
CTL HEAD(+)
CTL HEAD(-)
REC CTL
AMP
CTL
AMP-1
CTL
AMP-2
TP101
PB CTL PULSE
A
B
C
D
E
F
G
H
1
2
3
4
5
6


TP107
DRUM FG
WAVE FORM SHAPER
MIX
WAVE FORM SHAPER
IC251
TP108
DRUM PG
CN3
DRUM FG(+)
DRUM FG(−)
DRUM PG(+)
DRUM PG(−)
IC251
BRK
DIFERANCE AMP & GAIN VARIABLE AMP & DRIVE
HALL AMP & DRIVE WAVE MIXER
ERROR AMP
START/ STOP
MR 5V
H1(+)
H1(−)
H2(+)
H2(−)
H3(+)
H3(−)
L1
L2
L3
DRUM MOTOR
FT101
CAPSTAN TRAP
DRUM ERROR
DRUM POWER
CAPSTAN REFERENCE
DD1
DC−DC CONVERTOR
POWER ON
CAPSTAN POWER
Q1
DECK POWER ON(H): ON
MR HEAD
CN1
FG(+)
IC252
HALL REG
ROTATE CONTROL
DRIVE AMP
COIL 1
COIL 2
COIL 3
HG 1(+)
HG 1(−)
HG 2(+)
HG 2(−)
HG 3(+)
HG 3(−)
HG BIAS(+)
HG BIAS(−)
BIAS
CAPSTAN MOTOR
H
I
J
K
M
N
O

4.5 CAMARA BLOCK DIAGRAM



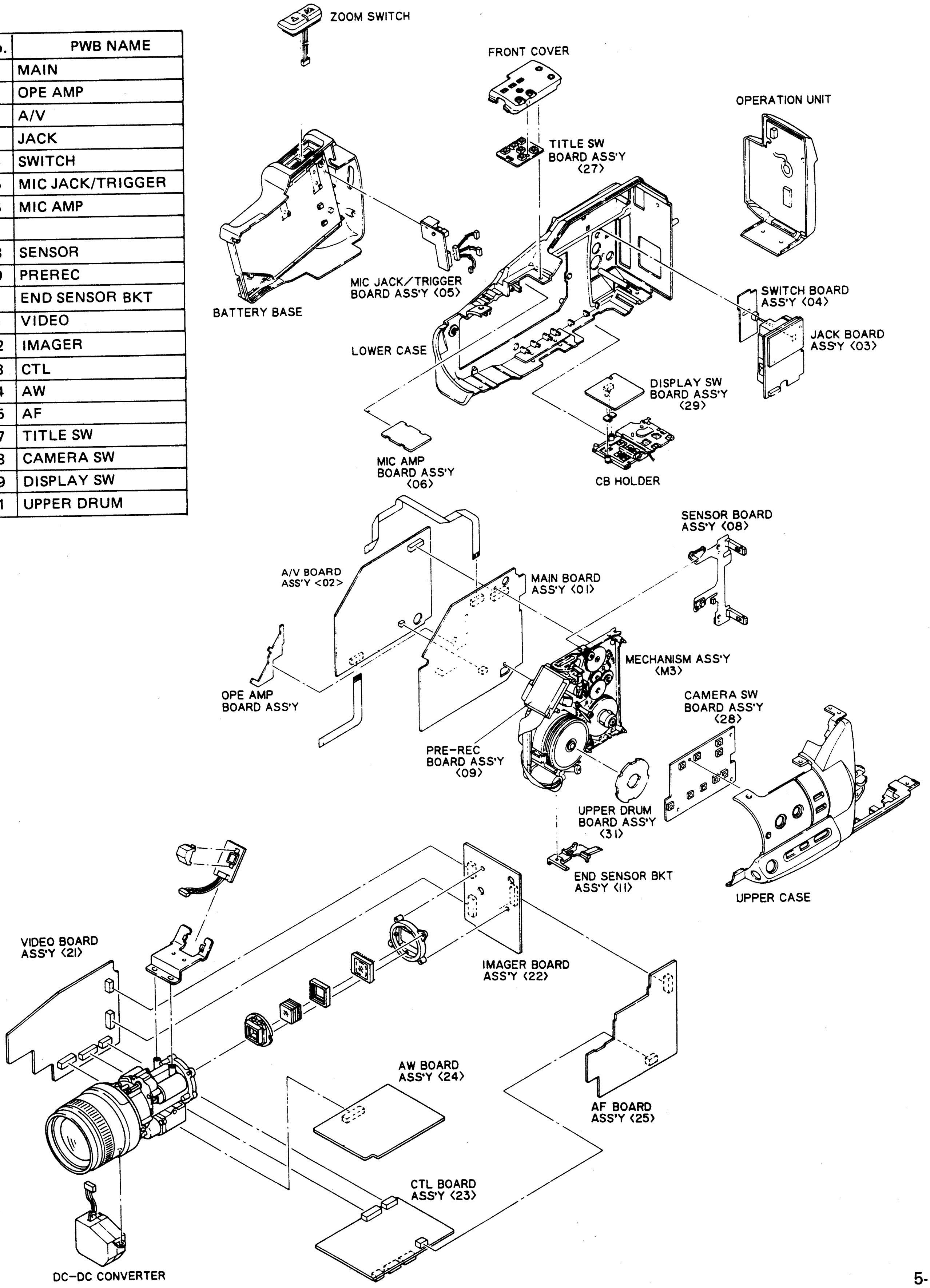
22 IMAGER
21 VIDEO
CN203
6 V AP
5 AF Y
4 AF YT
3 EE Y
To 25 AF CN501
CN204
CN101
CN205
CN102
IC201
CCD IMAGE SENSOR
Vφ1
Vφ2
Vφ3
Vφ4
Hφ2
Hφ1
Q201
BUFFER
TP202 V SUB
R240 CDS CANCEL
TP201 CDS CLOCK
IC205
CLAMP
S/H
DC CONT-ROL
IC203
IC202
V1
V2
V3
V4
GT1
GT2
HG2
C INV
MCK2
AGC CTL
5V
AO
LLL
CLAMP
AGC DET
LLL COMP
INV
AGC
S/H1
S/H2
LPF
VCA 3
VCA 2
VCA 1
R4 B GAIN
R6 R GAIN
R PED
B PED
IC101
EQ101
LPF 101
T
PED
BLK B/C
KNEE W/C
HPF
VCA
YL T
R/B T
W/B
MIX AMP
CN103 PIN 19
Q102
TRAP 102
EF
Q101
R55 COLOR DIF BALANCE
R93 COLOR OFFSET
A5
HG
AF Y T CN101-6
A1
A2
A3A4
A11
B CTL
R CTL
A
B
C
E
F
G
H
1
2
3
4
5
6


IC104
Q121
Q116
EF
TRAP 103
2SC
CN103 PIN 19
5V
IC102
NOISE DET
WAVE RECT
LIMIT
MUTE
IH DL CCD
VCA7
VCA6
VCA5
VCA4
VCA3
VCA2
VCA1
VCA2 CONT
BASE CLIP4
BASE CLIP3
BASE CLIP2
BASE CLIP
AMP
CLAMP
CLAMP3
FULL WAVE RECT
GCA
BLK
TRAP 102
Q102
Q101
R55 COLOR DIF BALANCE
R93 COLOR DIF OFFSET
A5
R57 COLOR OFFSET
DL 102
DL 101
CCD CLOCK DRIVER
φ1
φ2
AF Y T CN101-6
A10
AW B-Y
LPF 103
LPF 102
Q108
IC103
B-Y FADER
R-Y FADER
BURST MIX
B-Y MOD
R-Y MOD
R102 B-Y SC BAL
180°
0°
270°
90°
SHIFT
ACT LPF
ACT CTL
MIX CTL
SW CTL
Q115
Q114
SC1
SC2
BLK DET
GAIN CTL
R99 R-Y SC BAL
A7
CHRONA VCA
CHRONA BLK
BPF 101
Q103
Q104
CN107
C OUT
To 0 2 A/V CN6
PULSE SEPA
SC BLK
BURST GATE
C SYNC+CP
BF
A6
FRNG MIX
BLK MIX
CHARACTOR
SET UP
FADER
WHITE CLIP
SYNC
CHAR3 MIX
FRUG MIX
CHAR1 MIX
DL 103
Q105
Q106
Y OUT
H/L COMP
FADER CTL
A9
To CTL
R96 WHITE CLIP LEVEL
R128 SYNC LEVEL
From 2 3 CTL CN301
CN104
TB
TG
TR
IC108
Q113
KEY P
IC109
INV AMP
Q109
Q111
FADER
H
I
J
K
M
N
O

SECTION 5
SCHEMATIC DIAGRAMS AND CIRCUIT BOARDS

5.1 CIRCUIT BOARD LOCATION

No.	PWB NAME
01	MAIN
	OPE AMP
02	A/V
03	JACK
04	SWITCH
05	MIC JACK/TRIGGER
06	MIC AMP
08	SENSOR
09	PREREC
11	END SENSOR BKT
21	VIDEO
22	IMAGER
23	CTL
24	AW
25	AF
27	TITLE SW
28	CAMERA SW
29	DISPLAY SW
31	UPPER DRUM

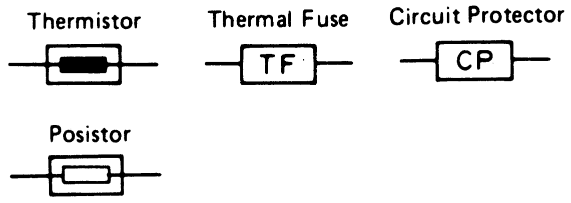

ZOOM SWITCH
FRONT COVER
OPERATION UNIT
TITLE SW BOARD ASS'Y <27>
BATTERY BASE
MIC JACK/TRIGGER BOARD ASS'Y <05>
SWITCH BOARD ASS'Y <04>
JACK BOARD ASS'Y <03>
LOWER CASE
DISPLAY SW BOARD ASS'Y <29>
MIC AMP BOARD ASS'Y <06>
CB HOLDER
SENSOR BOARD ASS'Y <08>
A/V BOARD ASS'Y <02>
MAIN BOARD ASS'Y <01>
MECHANISM ASS'Y <M3>
OPE AMP BOARD ASS'Y
CAMERA SW BOARD ASS'Y <28>
PRE-REC BOARD ASS'Y <09>
UPPER DRUM BOARD ASS'Y <31>
END SENSOR BKT ASS'Y <11>
UPPER CASE
VIDEO BOARD ASS'Y <21>
IMAGER BOARD ASS'Y <22>
AW BOARD ASS'Y <24>
AF BOARD ASS'Y <25>
CTL BOARD ASS'Y <23>
DC-DC CONVERTER

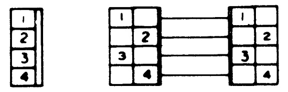
●SCHEMATIC DIAGRAM NOTES

1. ▨ parts are safety related parts. When replacing them, be sure to use the specified parts.

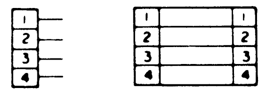
2. Unit indications

No units: [Ω]	No units: [μF]	No units: [μH]
K: [kΩ]	P: [pF]	m: [mH]
M: [MΩ]		

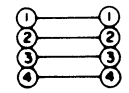

Thermistor
Thermal Fuse
TF
Circuit Protector
CP
Posistor



: Connector



: Board in connector

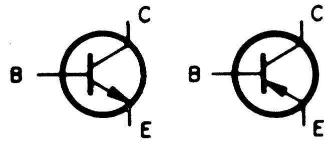


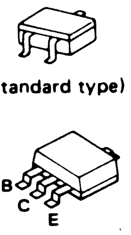
: Direct connection

COUNT UP : Active only at high.
COUNT DOWN : Active only at low.

VS : Connected pattern in the board.
MS Abbreviations
SM V : Video M : Mechacon
S : Servo A : Audio
VS : Signal flow from video to servo.

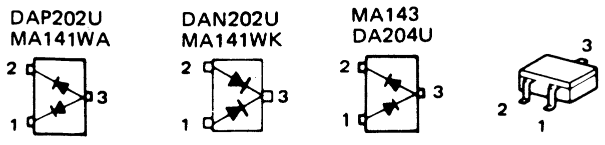
3. Chip transistor



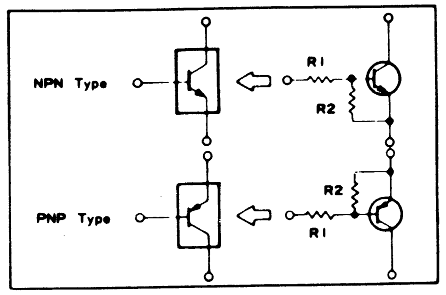


(Standard type)

4. Chip diode


DAP202U
MA141WA
DAN202U
MA141WK
MA143
DA204U
2
1
3
2
1
3
2
1
3
3
2
1

5. Digital transistor


NPN Type
R1
R2
PNP Type
R2
R1

RESISTOR VALUES

JUNCTION	Part No.	R1 (kΩ)	R2 (kΩ)
PNP	DTA124EU	22	22
NPN	DTC144EU	47	47
	DTC124EU	22	22

Note: The digital transistor includes built in resistors.
It features small size and high reliability.
Both PNP and NPN types are available.

USES: INVERTER, INTERFACE, DRIVER CIRCUITS.

6. Definition of the surface and the back of circuit board diagrams
   Front : Side on which discrete parts are assembled
   Rear : Side on which chip parts are assembled

5.2 MECHACON SCHEMATIC DIAGRAM

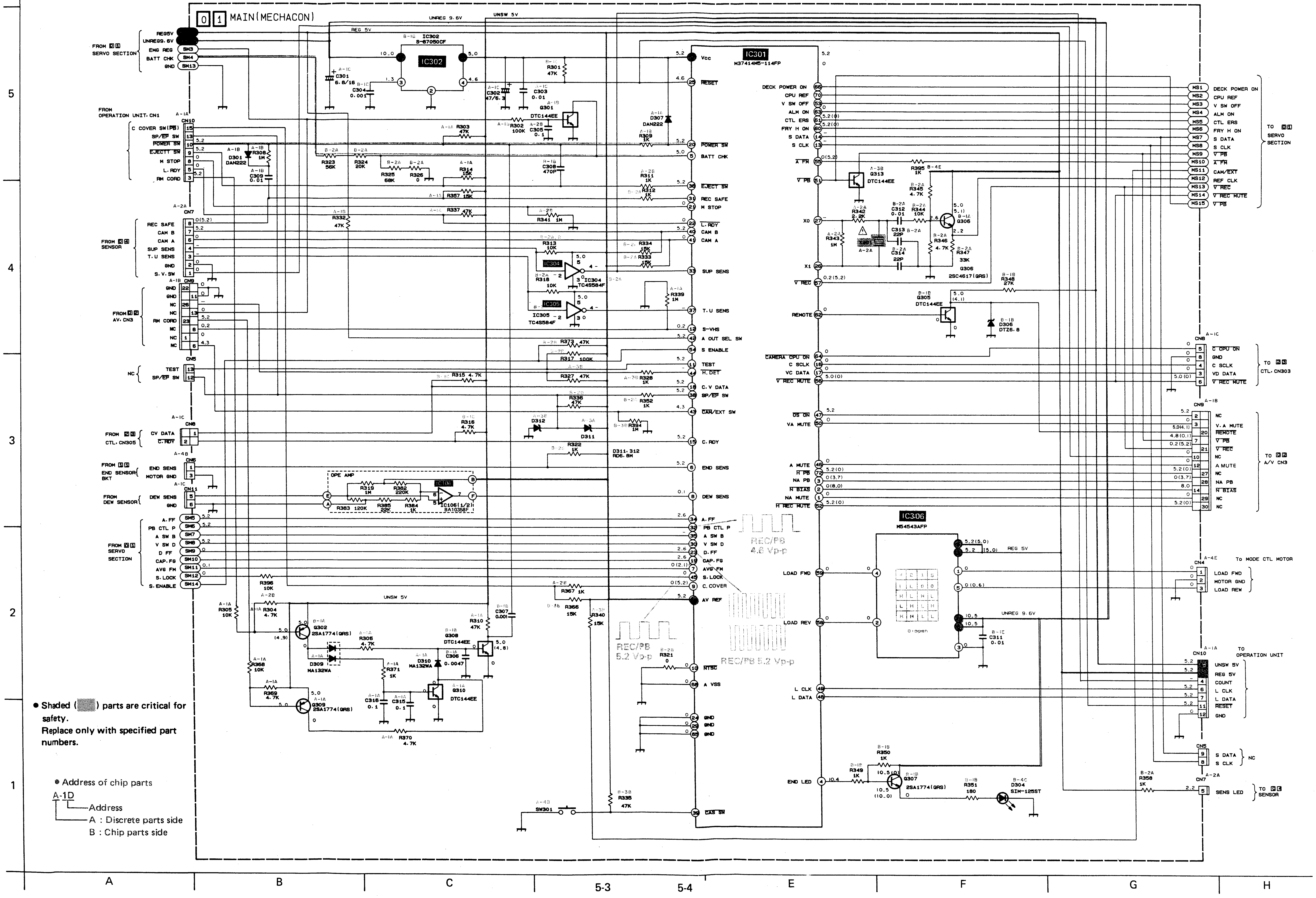
- Waveform

REC : Y/C separator input, color bar SP mode.
PB : Alignment tape, color bar SP mode.

- Voltage

REC : Y/C separator input, color bar SP mode.
PB : Alignment tape, color bar SP mode.

*Where voltage differ between recording and palyabck, the voltage during playback is shown in parenthesis.



01 MAIN(MECHACON)
IC301 M37414M5-114FP
IC302 S-87050CF
IC304 TC4S584F
IC305 TC4S584F
IC106(1/2) BA10358F
OPE AMP
IC306 M54543AFP
FROM 01 SERVO SECTION
REG5V
UNREG9.6V
EMG REG
BATT CHK
GND
FROM OPERATION UNIT.CN1
C COVER SW(PB)
SP/EP SW
POWER SW
EJECT SW
M STOP
L.RDY
RM CORD
FROM 04 SENSOR
REC SAFE
CAM B
CAM A
SUP SENS
T.U SENS
S.V.SW
FROM 02 AV.CN3
NC
TEST
SP/EP SW
FROM 03 CTL.CN305
CV DATA
C.RDY
FROM END SENSOR BKT
END SENS
MOTOR GND
FROM DEW SENSOR
DEW SENS
FROM 01 SERVO SECTION
A.FF
PB CTL P
A SW B
V SW D
D FF
CAP.FG
AVG FM
S.LOCK
S.ENABLE
Vcc
RESET
POWER SW
BATT CHK
EJECT SW
REC SAFE
M STOP
L.RDY
C.V DATA
CAR/EXT SW
C.RDY
END SENS
DEW SENS
C.COVER
AV REF
NTSC
A VSS
CAS SW
DECK POWER ON
CPU REF
V SW OFF
ALM ON
CTL ERS
FRY H ON
S DATA
S CLK
A FR
V PB
V REC
REMOTE
CAMERA CPU ON
C SCLK
VC DATA
V REC MUTE
OS ON
VA MUTE
A MUTE
H PB
NA PB
N BIAS
NA MUTE
H REC MUTE
LOAD FWD
LOAD REV
L CLK
L DATA
END LED
TO 01 SERVO SECTION
REF CLK
CAM/EXT
V REC MUTE
TO 03 CTL.CN303
C CPU ON
TO 02 A/V CN3
V.A MUTE
TO MODE CTL MOTOR
MOTOR GND
TO OPERATION UNIT
UNSW 5V
REG 5V
COUNT
TO 04 SENSOR
SENS LED
REC/PB 4.6 Vp-p
REC/PB 5.2 Vp-p
SW301
D304 SIR-125ST
Q307 2SA1774(QRS)
Q306 2SC4617(QRS)
Q302 2SA1774(QRS)
Q309 2SA1774(QRS)
Q301 DTC144EE
Q305 DTC144EE
Q308 DTC144EE
Q310 DTC144EE
Q313 DTC144EE
D301 DAN222
D307 DAN222
D306 DTZ6.8
D309 MA132WA
D310 MA132WA
D311·312 RD6.8M

- Shaded (▨) parts are critical for safety. Replace only with specified part numbers.

- Address of chip parts

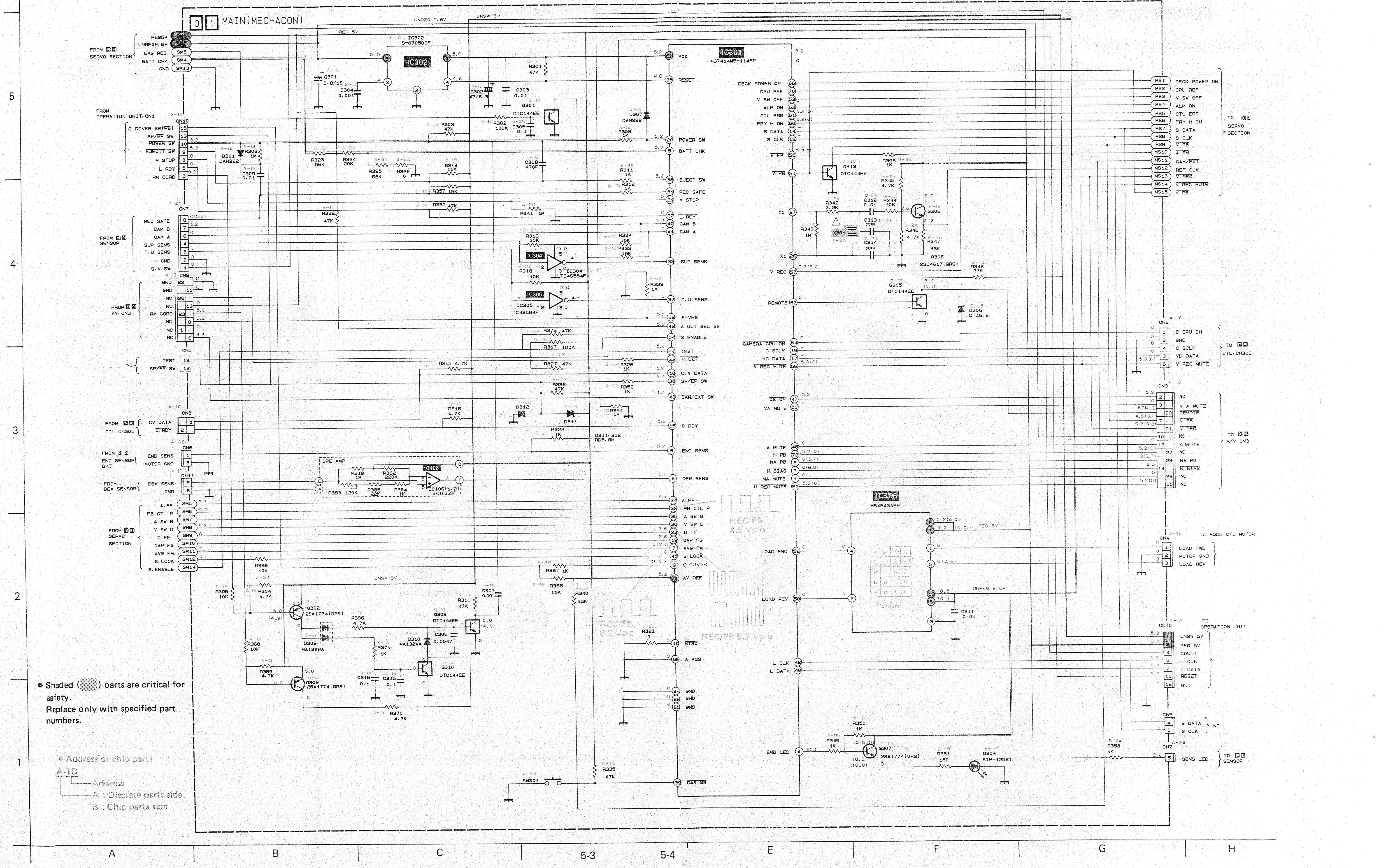
A-1D
Address
A : Discrete parts side
B : Chip parts side

5.2 MECHACON SCHEMATIC DIAGRAM

● Waveform
REC : Y/C separator input, color bar SP mode.
PB : Alignment tape, color bar SP mode.

● Voltage
REC : Y/C separator input, color bar SP mode.
PB : Alignment tape, color bar SP mode.

*Where voltage differ between recording and palyabck, the voltage during playback is shown in parenthesis.



01 MAIN(MECHACON)
FROM 01 SERVO SECTION
REG5V SM1
UNREG9.6V SM2
EMG REG SM3
BATT CHK SM4
GND SM13
UNREG 9.6V
UNSW 5V
REG 5V
IC302 S-87050CF
IC301 M37414M5-114FP
IC304 TC4S584F
IC305 TC4S584F
IC106 (1/2) BA10358F
IC306 M54543AFP
OPE AMP
Q301 DTC144EE
Q302 2SA1774(QRS)
Q305 DTC144EE
Q306 2SC4617(QRS)
Q307 2SA1774(QRS)
Q308 DTC144EE
Q309 2SA1774(QRS)
Q310 DTC144EE
Q313 DTC144EE
D301 DAN222
D307 DAN222
D309 MA132WA
D310 MA132WA
D304 SIM-125ST
D306 DTZ6.8
D311, 312 RD6.8M
X301
SW301
FROM OPERATION UNIT CN1
C COVER SW(PB)
SP/EP SW
POWER SW
EJECT SW
M STOP
L.RDY
RM CORD
FROM 01 SENSOR
REC SAFE
CAM B
CAM A
SUP SENS
T.U SENS
GND
S.V.SW
FROM 01 AV.CN3
NC
TEST
SP/EP SW
FROM 01 CTL.CN305
CV DATA
C.RDY
FROM 01 END SENSOR BKT
END SENS
MOTOR GND
FROM DEW SENSOR
DEW SENS
FROM 01 SERVO SECTION
A.FF
PB CTL P
A SW B
V SW D
D FF
CAP.FG
AVG FM
S.LOCK
S.ENABLE
Vcc
RESET
POWER SW
BATT CHK
EJECT SW
REC SAFE
M STOP
L.RDY
CAM B
CAM A
SUP SENS
T.U SENS
S-VHS
A OUT SEL SW
S ENABLE
TEST
H.DET
C.V DATA
SP/EP SW
CAM/EXT SW
C.RDY
END SENS
DEW SENS
A.FF
PB CTL P
A SW B
V SW D
D.FF
CAP.FG
AVG FM
S.LOCK
C.COVER
AV REF
NTSC
A VSS
GND
CAS SW
DECK POWER ON
CPU REF
V SW OFF
ALM ON
CTL ERS
FRY H ON
S DATA
S CLK
A FM
V PB
XO
X1
V REC
REMOTE
CAMERA CPU ON
C SCLK
VC DATA
V REC MUTE
DS ON
VA MUTE
A MUTE
H PB
NA PB
N BIAS
NA MUTE
H REC MUTE
LOAD FWD
LOAD REV
L CLK
L DATA
END LED
REC/PB 4.6 Vp-p
REC/PB 5.2 Vp-p
O:open
TO 01 SERVO SECTION
MS1 DECK POWER ON
MS2 CPU REF
MS3 V SW OFF
MS4 ALM ON
MS5 CTL ERS
MS6 FRY H ON
MS7 S DATA
MS8 S CLK
MS9 V PB
MS10 A FM
MS11 CAM/EXT
MS12 REF CLK
MS13 V REC
MS14 V REC MUTE
MS15 V PB
TO 01 CTL.CN303
C CPU ON
GND
C SCLK
VD DATA
V REC MUTE
TO 01 A/V CN3
NC
V.A MUTE
REMOTE
V PB
V REC
A MUTE
NA PB
N BIAS
TO MODE CTL MOTOR
LOAD FWD
MOTOR GND
LOAD REW
TO OPERATION UNIT
UNSW 5V
REG 5V
COUNT
L CLK
L DATA
RESET
GND
S DATA
S CLK
NC
TO 01 SENSOR
SENS LED
A B C D E F G H
1 2 3 4 5 6

● Shaded (▨) parts are critical for safety.
Replace only with specified part numbers.

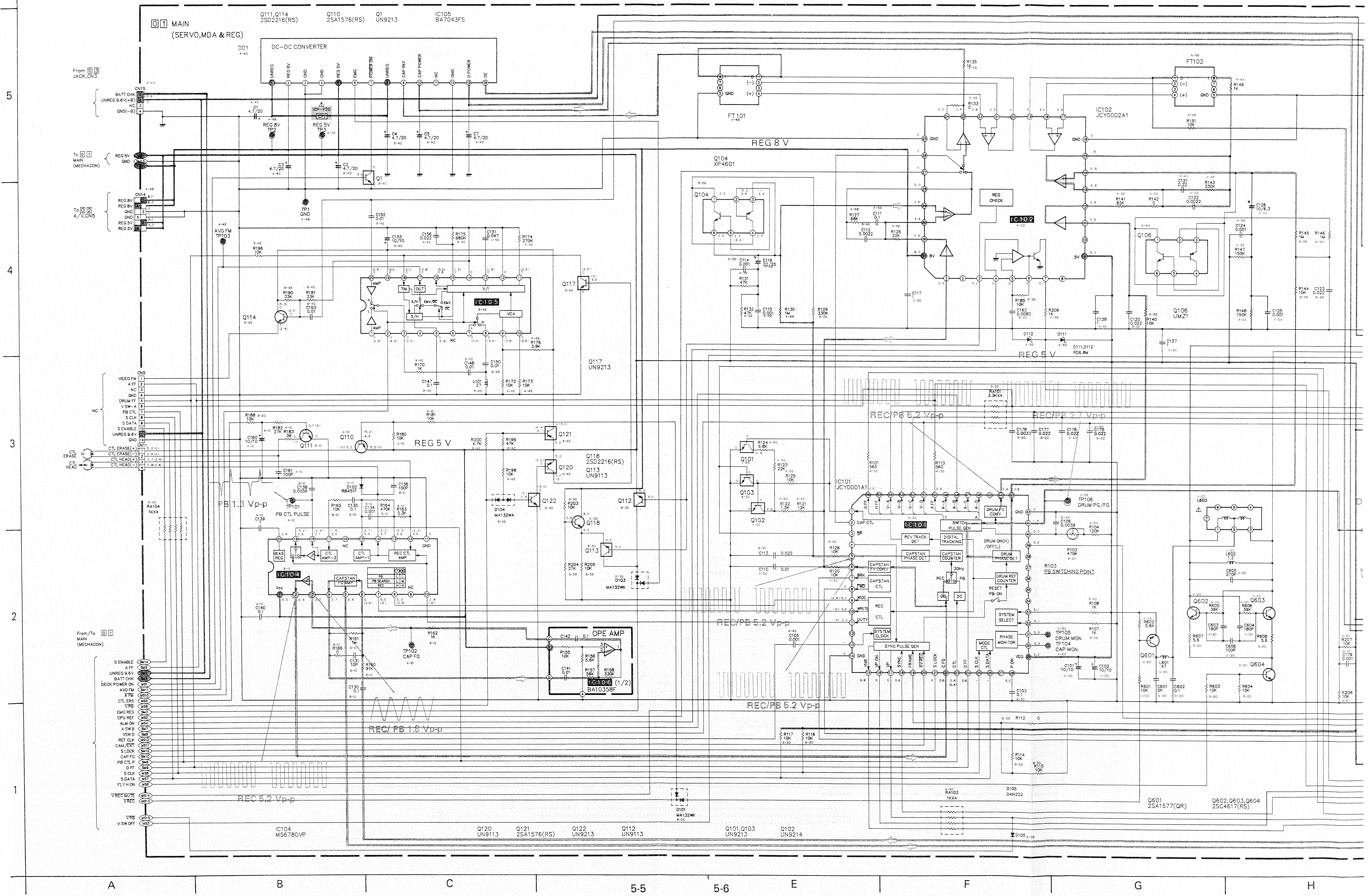
● Address of chip parts
A-1D
Address
A : Discrete parts side
B : Chip parts side

5.3 SERVO SCHEMATIC DIAGRAM

● Voltage
REC : Y/C separator input, color bar SP mode.
PB : Alignment tape, color bar SP mode.

*Where voltage differ between recording and palyabck, the voltage during playback is shown in parenthesis.

● Waveform
REC : Y/C separator input, color bar SP mode.
PB : Alignment tape, color bar SP mode.



6
5
4
3
2
1
A
B
C
D
E
F
G
H
01 MAIN (SERVO,MDA & REG)
Q111,Q114 2SD2216(RS)
Q110 2SA1576(RS)
Q1 UN9213
IC105 BA7043FS
DD1
DC-DC CONVERTER
UNREG
REG 8V
GND
REG 5V
EMG
POWER ON
CAP REF
NC
D POWER
DE
From 03 JACK,CN3
CN15
BATT CHK
UNREG 9.6V(+B)
NC
GND(-B)
REG 8V TP2
REG 5V TP3
ICP-F20
To 01 MAIN (MECHACON)
REG 5V
GND
To 02 A/V,CN5
CN14
REG 8V
GND
REG 5V
TP1 GND
AVG FM TP103
Q1
FT101
FT102
REG 8 V
Q104 XP4601
IC102 JCY0002A1
REG CHECK
IC102
Q106
Q105 UMZ1
D111,D112 RD6.8M
REG 5 V
IC105
AMP
TM
OUT
V/I
S/H
EMV/DC
EMV
VCA
Q114
Q117
Q117 UN9213
CN5
VIDEO FM
A FF
NC
GND
DRUM FF
V.SW-A
PB CTL
S CLK
S DATA
S ENABLE
UNREG 9.6V
GND
NC
CN11
CTL ERASE(+)
CTL ERASE(-)
CTL HEAD(+)
CTL HEAD(-)
CTL ERASE
CTL HEAD
Q110
Q111
REG 5 V
Q121
Q118 2SD2216(RS)
Q113 UN9113
Q120
Q122
Q118
Q113
Q112
D104 MA132WA
D103 MA132WK
RA104 1KX4
PB 1.3 Vp-p
TP101 PB CTL PULSE
IC104
BIAS REG
CTL AMP-2
CTL AMP-1
REC CTL AMP
CAPSTAN FG AMP
PB SEARCH REC
NC
GND
Vcc
TP102 CAP FG
OPE AMP
IC106 (1/2) BA10358F
REC/ PB 1.8 Vp-p
From/To 01 MAIN (MECHACON)
S ENABLE
A FF
UNREG 9.6V
BATT CHK
DECK POWER ON
AVG FM
ATM
CTL ERS
VPB
EMG REG
CPU REF
ALM ON
A SWB
VSW D
REF CLK
CAM/EXT
S LOCK
CAP FG
PB CTL P
D FF
S CLK
S DATA
FLY H ON
V.REC MUTE
V.REC
V.PB
V.SW OFF
REC 5.2 Vp-p
IC104 M56780VP
Q120 UN9113
Q121 2SA1576(RS)
Q122 UN9213
Q112 UN9113
D101 MA132WK
Q101,Q103 UN9213
Q102 UN9214
Q101
Q103
Q102
IC101 JCY0001A1
IC101
REC/PB 5.2 Vp-p
REC/PB 2.7 Vp-p
RA101 3.3KX4
CAP CTL
REV TRACK DET
CAPSTAN PHASE DET
CAPSTAN COUNTER
CAPSTAN FV CONV
CAPSTAN CTL
DIGITAL TRACKING
SWITCH PULSE GEN
DRUM F/V CONV
DRUM PHASE DET
DRUM REF COUNTER
DRUM ON(H)/OFF(L)
RESET PB:ON
REC CTL
SYSTEM CLOCK
SYNC PULSE GEN
SYSTEM SELECT
PHASE MONITOR
MODE CTL
TP106 DRUM PG/FG
R103 PB SWITCHING POINT
TP105 DRUM MON
TP104 CAP MON
RA103 1KX4
D105 DAN222
L603
Q602
Q603
Q601
Q604
Q601 2SA1577(QR)
Q602,Q603,Q604 2SC4617(RS)

arator input, color bar SP mode.
nt tape, color bar SP mode.

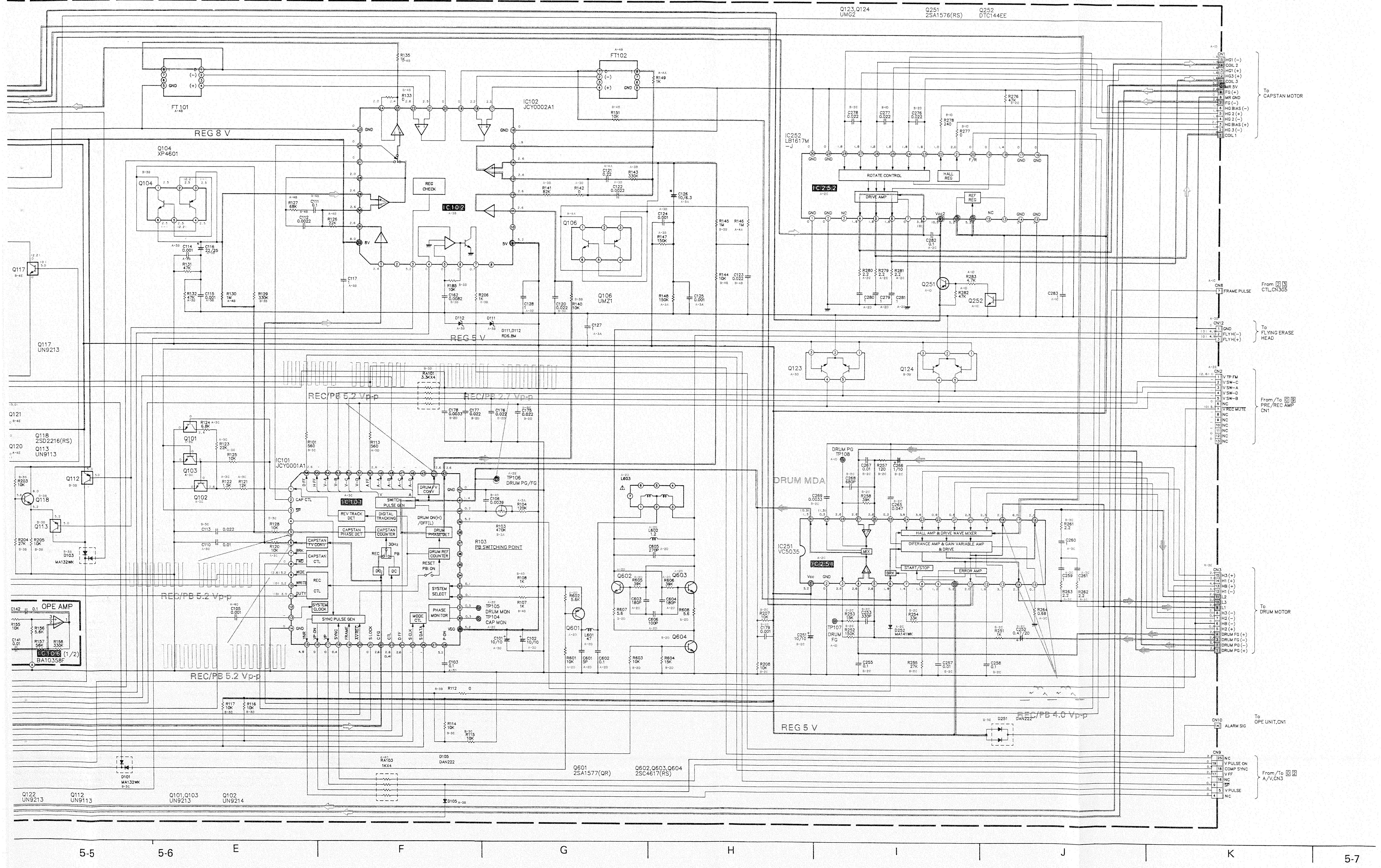
*Where voltage differ between recording and palyabck, the voltage during playback is shown in parenthesis.

● Waveform
REC : Y/C separator input, color bar SP mode.
PB : Alignment tape, color bar SP mode.

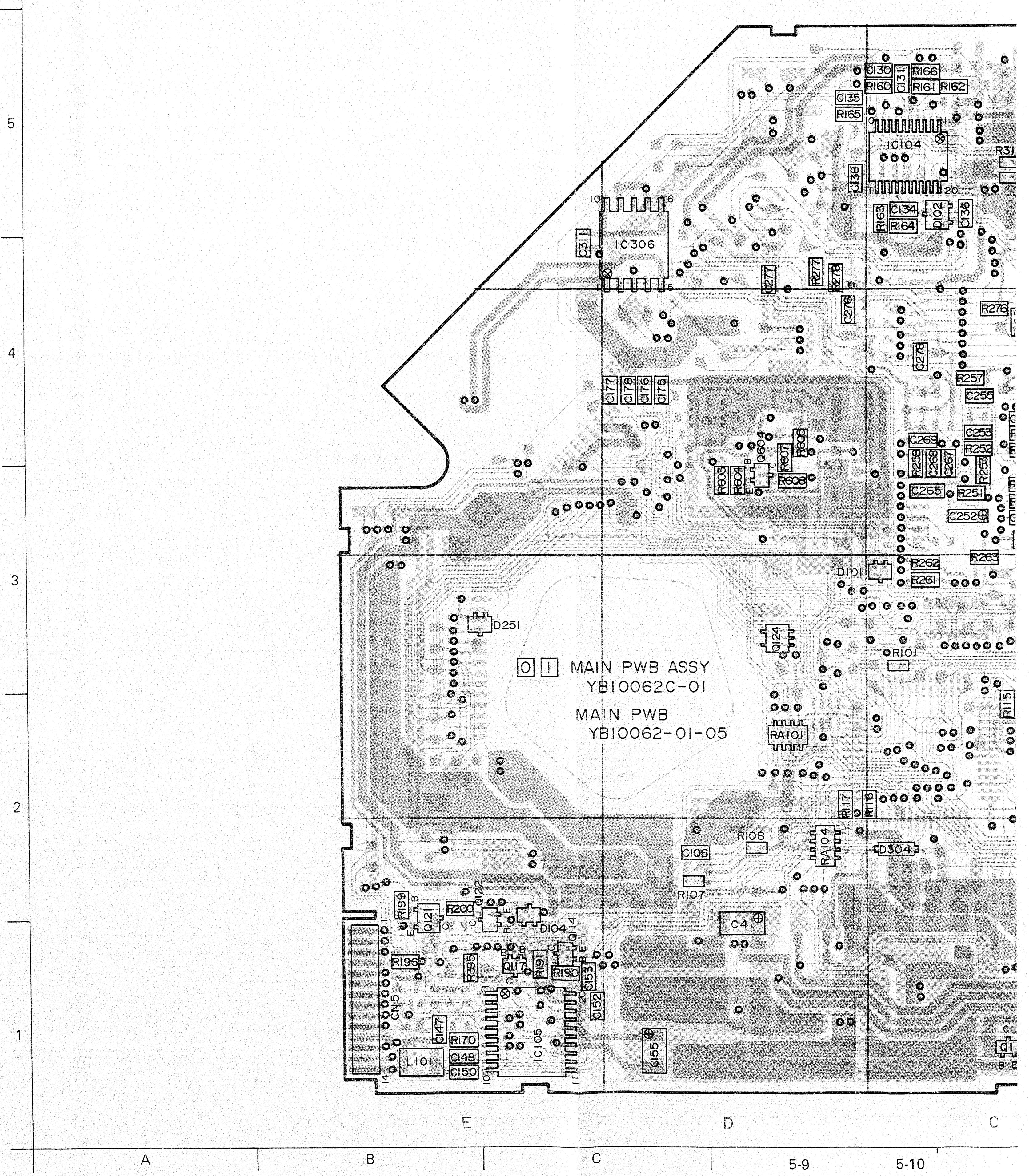
● SIGNAL PATH
⇐ DRUM SERVO
⇐ CAPSTAN SERVO

● Shaded (▨) parts are critical for safety.
Replace only with specified part numbers.

● Address of chip parts
A-1D
Address
A : Discrete parts side
B : Chip parts side

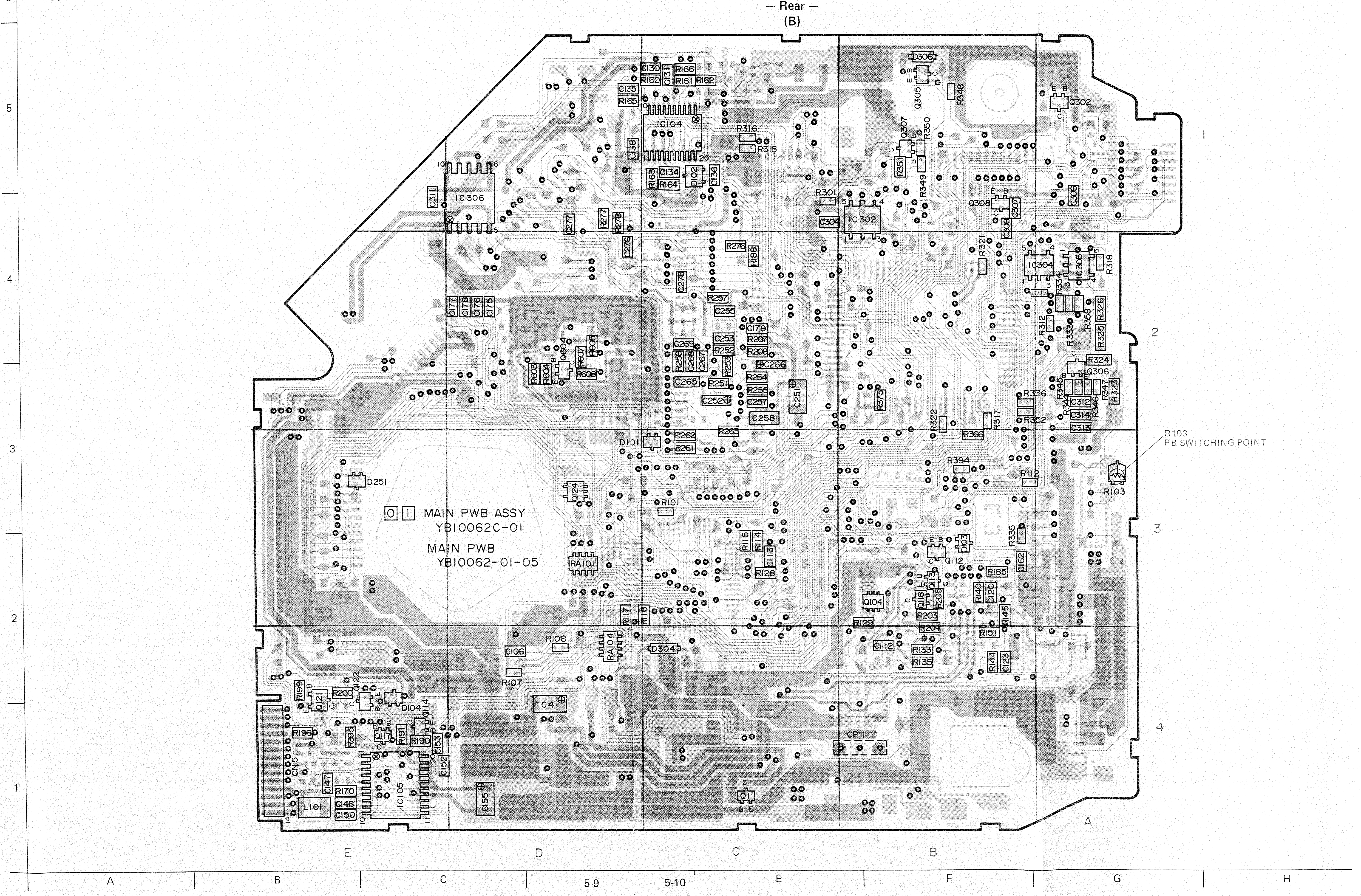

Q123,Q124 UMG2
Q251 2SA1576(RS)
Q252 DTC144EE
FT101
FT102
REG 8 V
Q104 XP4601
IC102 JCY0002A1
REC CHECK
Q106 UMZ1
REG 5 V
D111,D112 RD6.8M
IC252 LB1617M -J
ROTATE CONTROL
DRIVE AMP
HALL REG
REF REG
To CAPSTAN MOTOR
From 23 CTL,CN305
FRAME PULSE
To FLYING ERASE HEAD
From/To 09 PRE/REC AMP CN1
Q117 UN9213
Q121
Q118 2SD2216(RS)
Q113 UN9113
Q120
Q112
Q101
Q103
Q102
IC101 JCY0001A1
REC/PB 5.2 Vp-p
REC/PB 2.7 Vp-p
TP106 DRUM PG/FG
SWITCH PULSE GEN
DRUM FV CONV
REV TRACK DET
DIGITAL TRACKING
CAPSTAN PHASE DET
CAPSTAN COUNTER
DRUM PHASE DET
CAPSTAN FV CONV
CAPSTAN CTL
DRUM REF COUNTER
REC CTL
SYSTEM SELECT
SYSTEM CLOCK
SYNC PULSE GEN
PHASE MONITOR
MODE CTL
R103 PB SWITCHING POINT
TP105 DRUM MON
TP104 CAP MON
OPE AMP
IC106 (1/2) BA10358F
D103 MA132WK
L603
Q601
Q602
Q603
Q604
DRUM MDA
DRUM PG TP108
IC251 VC5035
HALL AMP & DRIVE WAVE MIXER
DIFERANCE AMP & GAIN VARIABLE AMP & DRIVE
START/STOP
ERROR AMP
MIX
BRK
TP107 DRUM FG
D252 MA141WK
To DRUM MOTOR
REC/PB 4.0 Vp-p
D251 DAN222
REG 5 V
To OPE UNIT,CN1
ALARM SIG
From/To 02 A/V,CN3
D101 MA132WK
RA103 1KX4
D105 DAN222
Q601 2SA1577(QR)
Q602,Q603,Q604 2SC4617(RS)
Q122 UN9213
Q112 UN9113
Q101,Q103 UN9213
Q102 UN9214
5-5
5-6
E
F
G
H
I
J
K
5-7

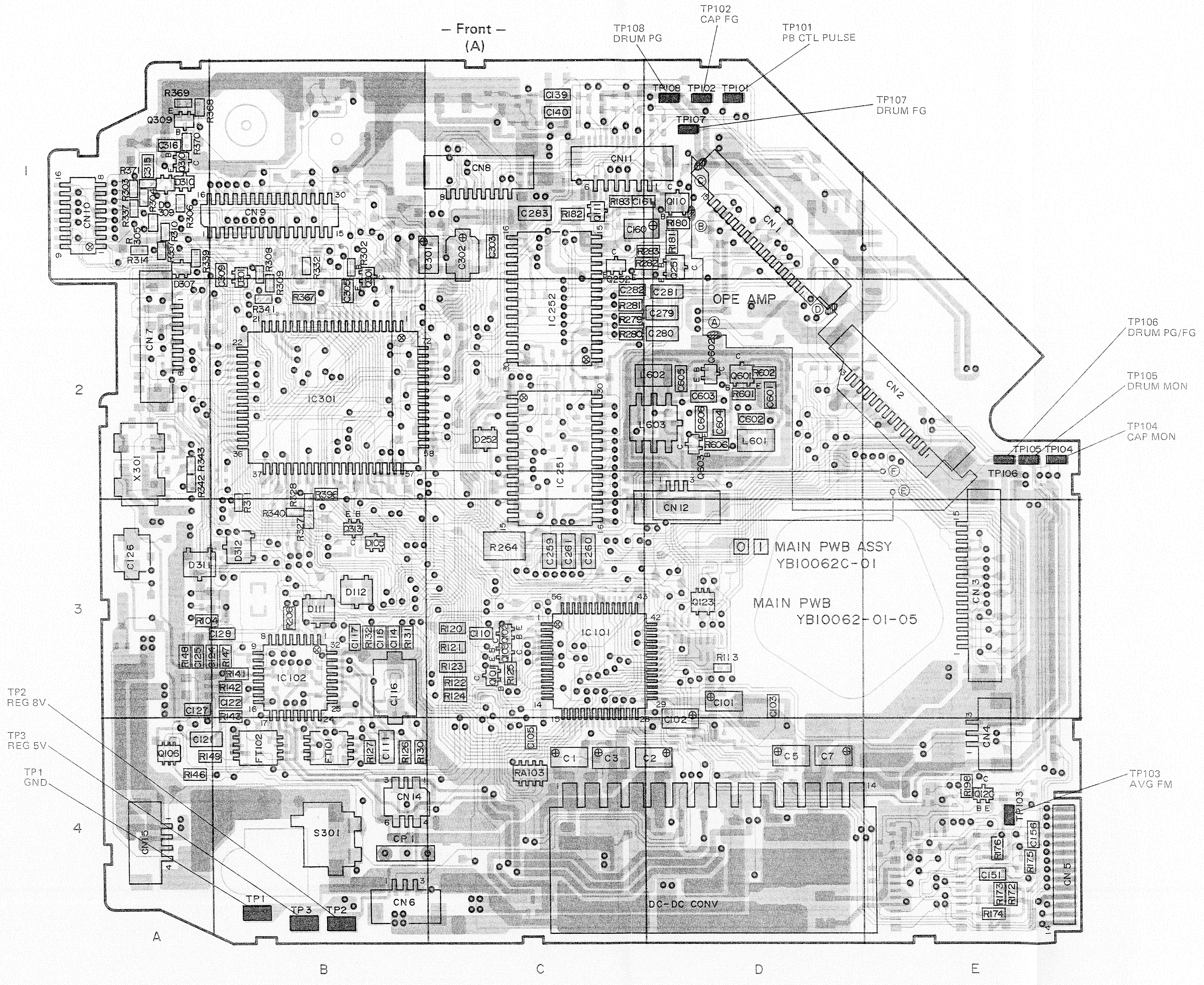
5.4 MAIN CIRCUIT BOARD

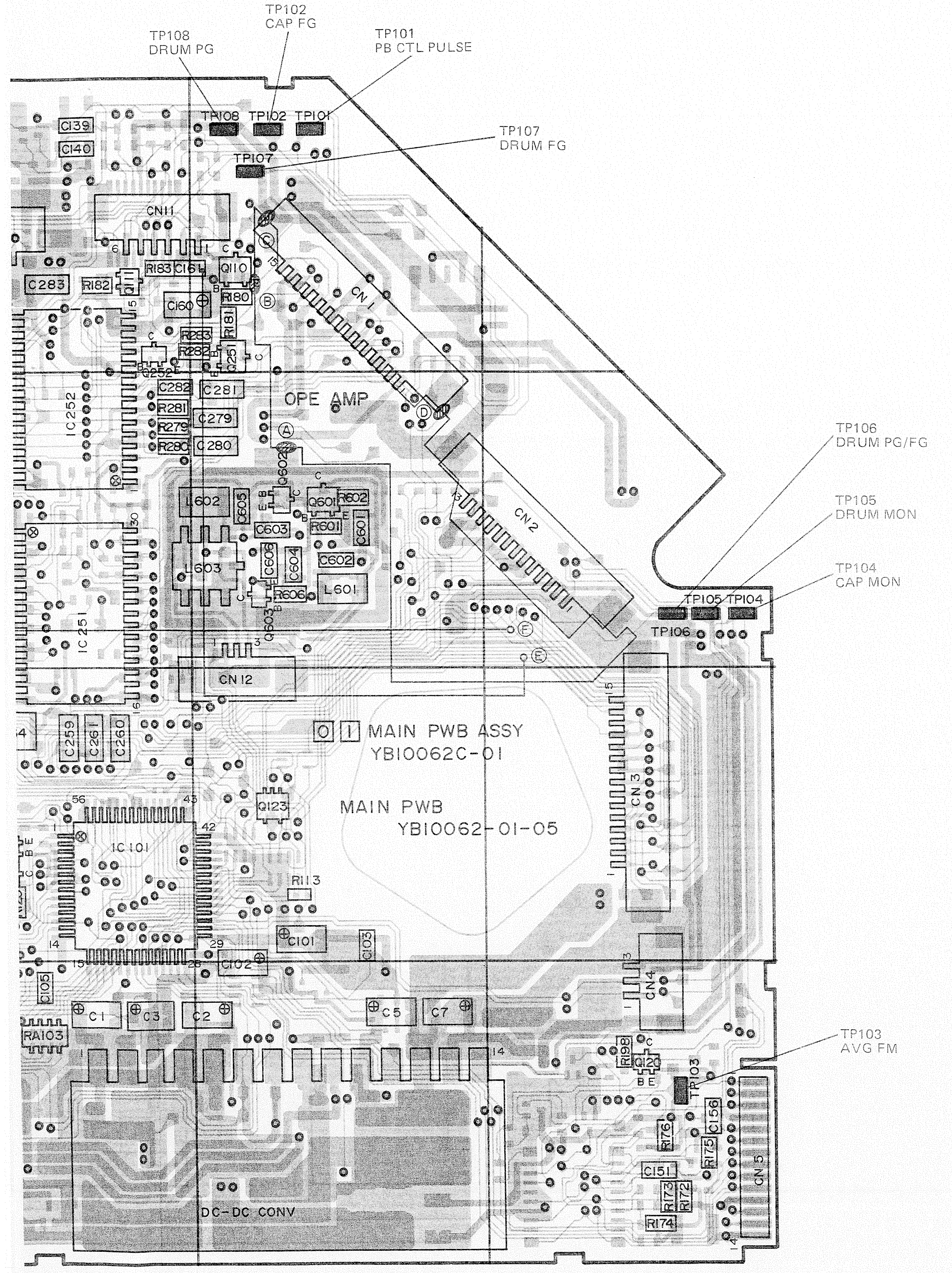


6
5
4
3
2
1
A
B
C
5-9
5-10
E
D
C
0 1 MAIN PWB ASSY
YB10062C-01
MAIN PWB
YB10062-01-05
IC104
IC306
IC105
C130
C131
R166
R160
R161
R162
C135
R165
R31
C138
R163
C134
R164
D102
C136
C311
C277
R277
R278
C276
R276
C278
R257
C255
C177
C178
C176
C175
Q604
R605
R607
R603
R604
R606
C268
C253
R252
R256
C266
C267
R253
C265
R251
C252
R263
R262
R261
D101
D251
Q124
R101
R115
RA101
R117
R118
R108
C106
R107
RA104
D304
C4
R199
Q121
R200
Q122
D104
Q114
R196
R195
R191
R190
C153
C152
CN5
C147
R170
C148
C150
L101
C155

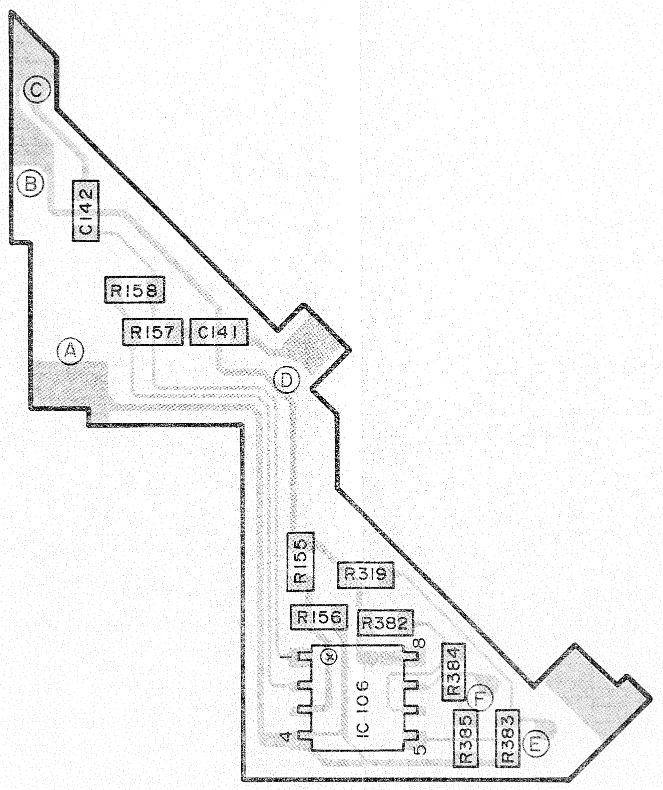
5.4 MAIN CIRCUIT BOARD


– Rear –
(B)
R103
PB SWITCHING POINT
01 MAIN PWB ASSY
YB10062C-01
MAIN PWB
YB10062-01-05
IC104
IC105
IC302
IC304
IC305
IC306
Q112
Q104
Q302
Q305
Q306
Q307
Q308
Q604
D101
D102
D103
D104
D251
D304
D306
RA101
RA104
CN5
L101
CP1
C4
C155
C251
A
B
C
D
E
F
G
H
1
2
3
4
5
6


– Front –
(A)
TP108
DRUM PG
TP102
CAP FG
TP101
PB CTL PULSE
TP107
DRUM FG
TP106
DRUM PG/FG
TP105
DRUM MON
TP104
CAP MON
TP103
AVG FM
TP2
REG 8V
TP3
REG 5V
TP1
GND
OPE AMP
01 MAIN PWB ASSY
YB10062C-01
MAIN PWB
YB10062-01-05
DC-DC CONV
IC301
IC252
IC251
IC101
IC102
CN1
CN2
CN3
CN4
CN5
CN6
CN7
CN8
CN9
CN10
CN11
CN12
CN14
CN15
S301
X301
CP1
1
2
3
4
A
B
C
D
E


TP108
DRUM PG
TP102
CAP FG
TP101
PB CTL PULSE
TP107
DRUM FG
TP106
DRUM PG/FG
TP105
DRUM MON
TP104
CAP MON
TP103
AVG FM
OPE AMP
CN 1
CN 2
CN 3
CN 4
CN 5
CN11
CN 12
IC 252
IC 251
IC 101
Q110
Q123
L602
L603
L601
DC–DC CONV
01 MAIN PWB ASSY
YB10062C-01
MAIN PWB
YB10062-01-05

– OPE AMP –


C142
R158
R157
C141
R155
R319
R156
R382
IC 106
R384
R385
R383

OPE AMP PWB YB20377-01-01
OPE AMP PWB ASS'Y YB20377A-01

C D E

N O P Q R S T

5.5 Y/C SCHEMATIC DIAGRAM

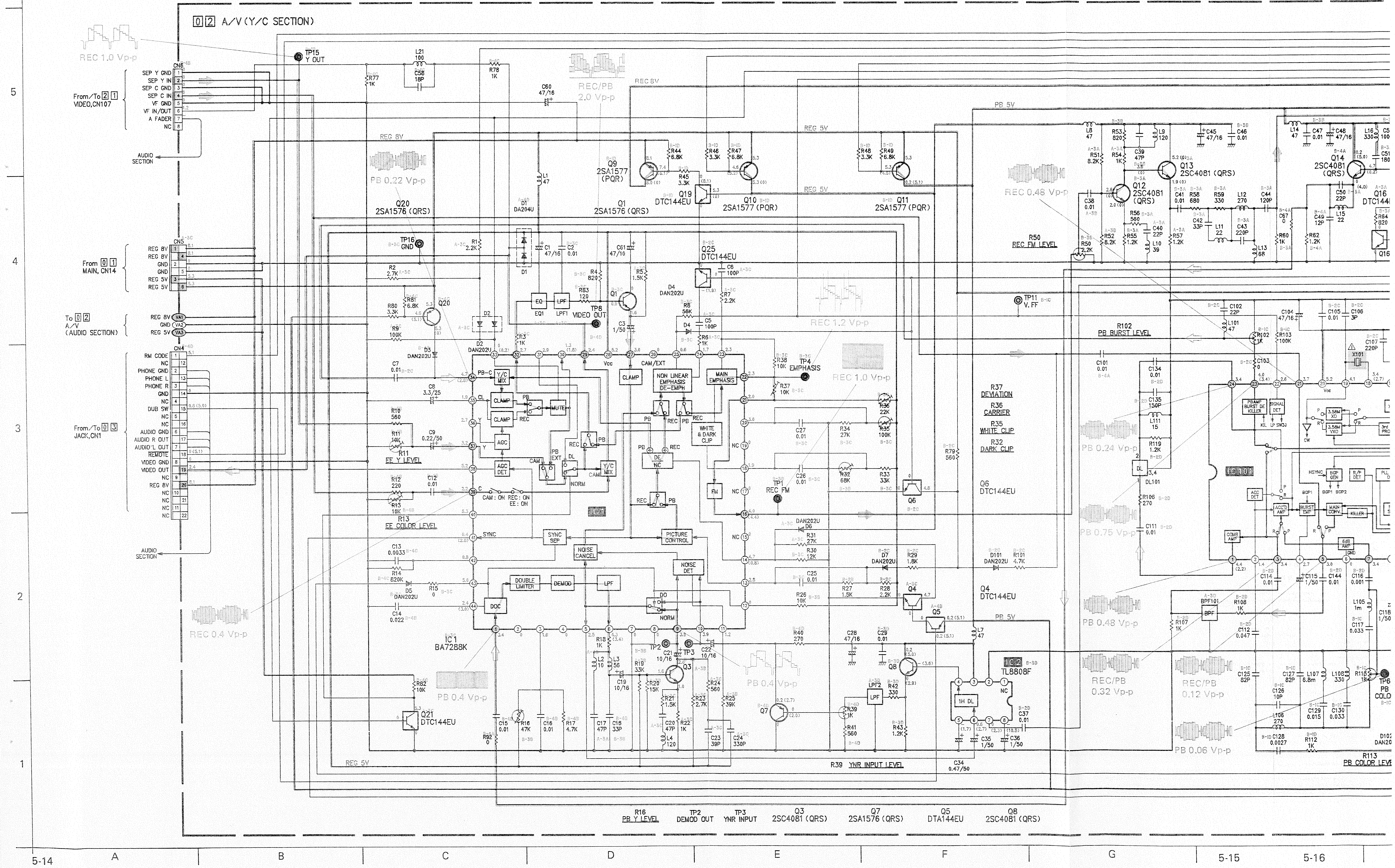
DC VOLTAGE:

◦ DC-measured with a digital voltmeter during recording and playback with SP mode.

◦ Whem the measured voltages were different in REC and PLAY modes, voltage measured in PLAY mode is shown in parentheses ( ).

● Shaded ( ) parts are critical for safety. Replace only with specified part numbers.

Waveform:
Wavefor
the follo



02 A/V (Y/C SECTION)
From/To 21 VIDEO,CN107
CN6
SEP Y GND
SEP Y IN
SEP C GND
SEP C IN
VF GND
VF IN/OUT
A FADER
NC
AUDIO SECTION
From 01 MAIN, CN14
CN5
REG 8V
GND
REG 5V
To 02 A/V (AUDIO SECTION)
From/To 03 JACK,CN1
CN4
RM CODE
PHONE GND
PHONE L
PHONE R
DUB SW
AUDIO GND
AUDIO R OUT
AUDIO L OUT
REMOTE
VIDEO GND
VIDEO OUT
REC 1.0 Vp-p
TP15 Y OUT
REC/PB 2.0 Vp-p
PB 0.22 Vp-p
REC 0.48 Vp-p
REC 1.2 Vp-p
REC 1.0 Vp-p
PB 0.24 Vp-p
PB 0.75 Vp-p
PB 0.48 Vp-p
REC/PB 0.32 Vp-p
REC/PB 0.12 Vp-p
PB 0.06 Vp-p
REC 0.4 Vp-p
PB 0.4 Vp-p
REG 8V
REC 8V
REG 5V
PB 5V
Q9 2SA1577 (PQR)
Q1 2SA1576 (QRS)
Q10 2SA1577 (PQR)
Q11 2SA1577 (PQR)
Q19 DTC144EU
Q20 2SA1576 (QRS)
Q25 DTC144EU
Q12 2SC4081 (QRS)
Q13 2SC4081 (QRS)
Q14 2SC4081 (QRS)
Q16 DTC144
Q6 DTC144EU
Q4 DTC144EU
Q21 DTC144EU
TP16 GND
TP8 VIDEO OUT
TP4 EMPHASIS
TP1 REC FM
TP11 V. FF
TP2
TP3
TP6 PB COLO
R11 EE Y LEVEL
R13 EE COLOR LEVEL
R50 REC FM LEVEL
R102 PB BURST LEVEL
R37 DEVIATION
R36 CARRIER
R35 WHITE CLIP
R32 DARK CLIP
R39 YNR INPUT LEVEL
R113 PB COLOR LEVE
IC1 BA7288K
IC2 TL8808F
IC101
1H DL
LPF2
X101
CLAMP
AGC
AGC DET
Y/C MIX
MUTE
NON LINEAR EMPHASIS DE-EMPH
MAIN EMPHASIS
WHITE & DARK CLIP
SYNC SEP
NOISE CANCEL
PICTURE CONTROL
NOISE DET
DOUBLE LIMITER
DEMOD
DOC
CAM/EXT
CAM : ON REC : ON EE : ON
R16 PB Y LEVEL
TP2 DEMOD OUT
TP3 YNR INPUT
Q3 2SC4081 (QRS)
Q7 2SA1576 (QRS)
Q5 DTA144EU
Q8 2SC4081 (QRS)
A
B
C
D
E
F
G
1
2
3
4
5
6

eter during recording

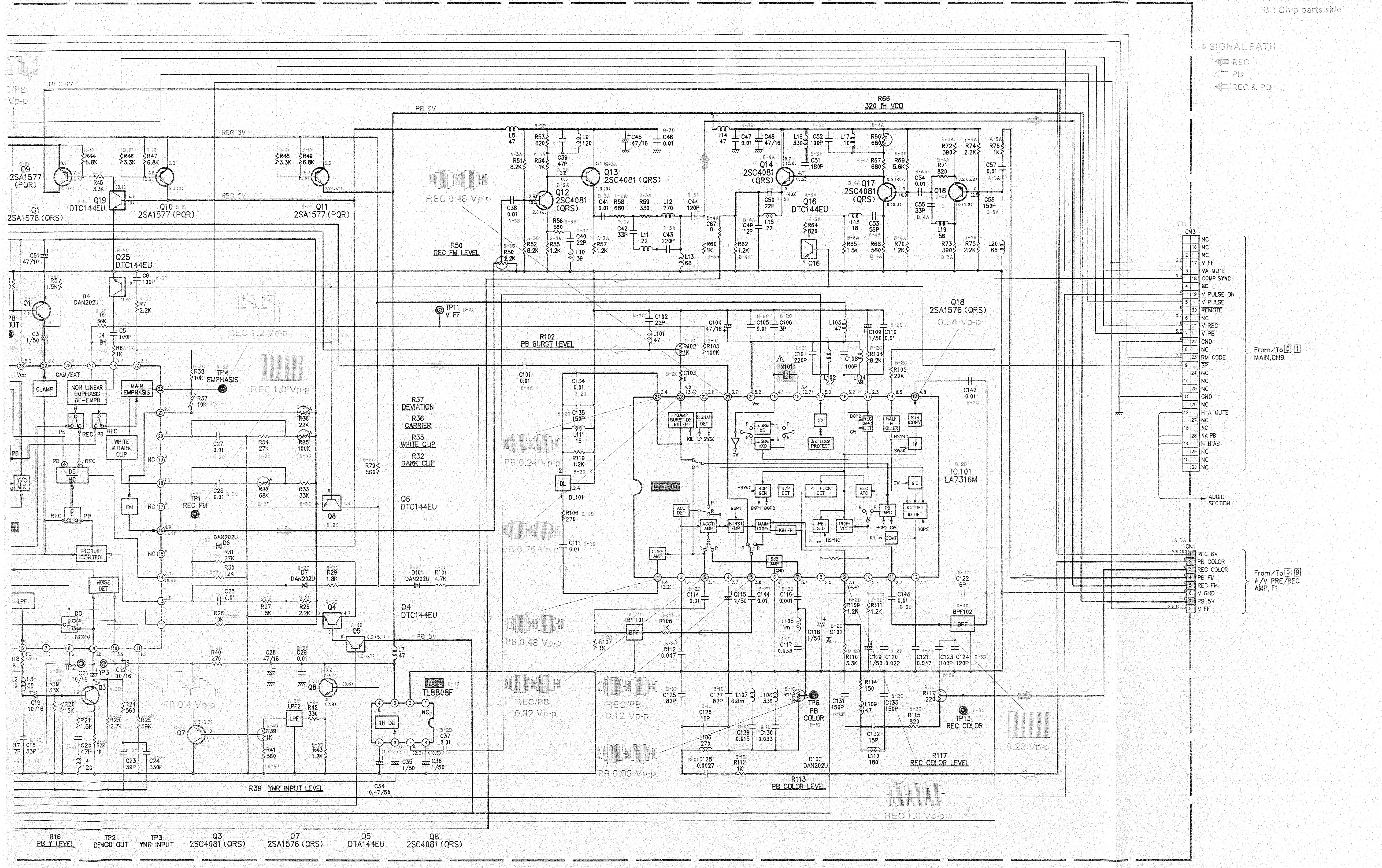
• Whem the measured voltages were different in REC and PLAY modes, voltage measured in PLAY mode is shown in parentheses (   ).

• Shaded (   ) parts are critical for safety. Replace only with specified part numbers.

Waveform:
Waveforms of video signal were measured in the following menner.

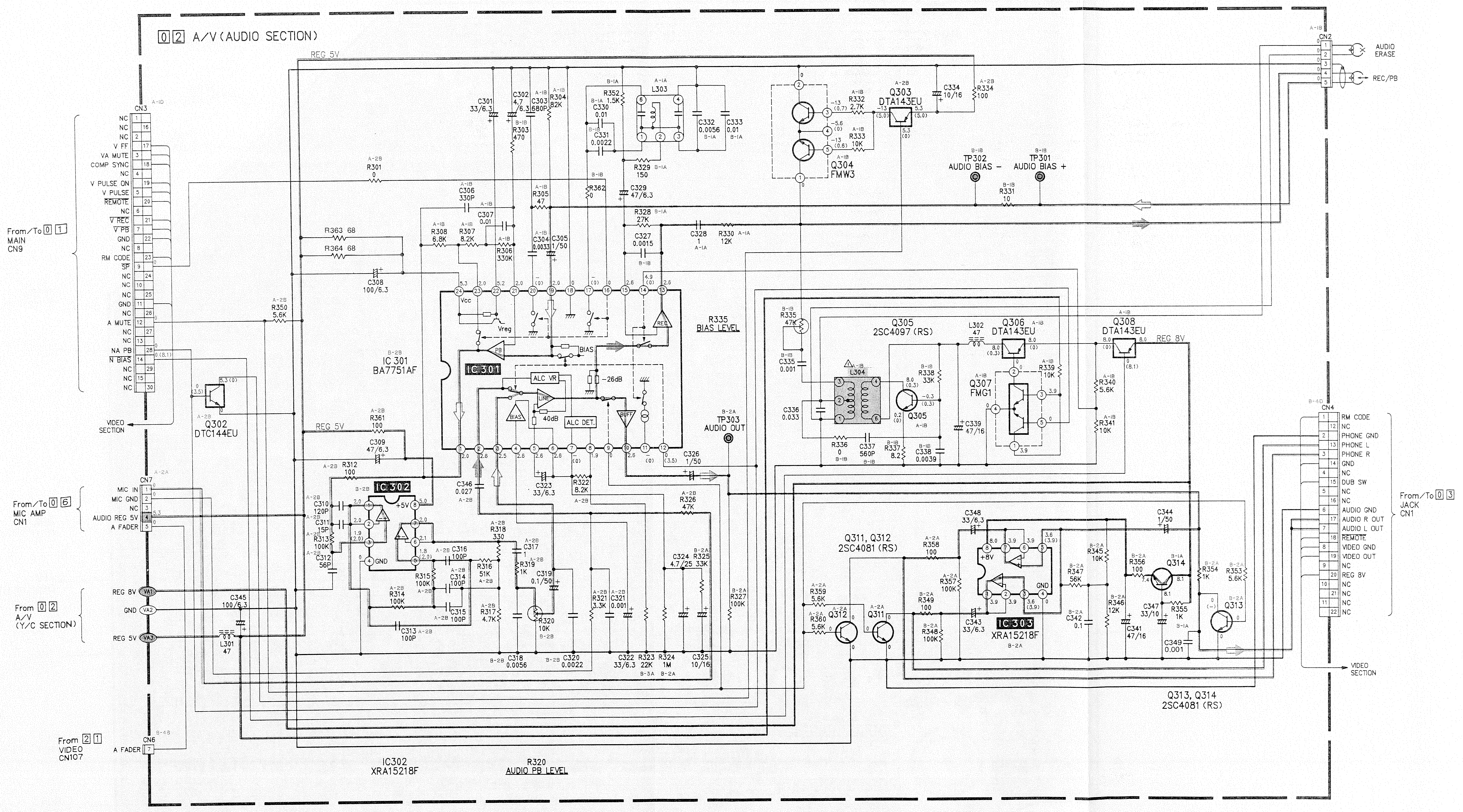
• Address of chip parts
A-1D
Address
A : Discrete parts side
B : Chip parts side

• SIGNAL PATH
REC
PB
REC & PB


REC 8V
PB 5V
REC 5V
Q9 2SA1577 (PQR)
Q1 2SA1576 (QRS)
Q19 DTC144EU
Q10 2SA1577 (PQR)
Q11 2SA1577 (PQR)
Q25 DTC144EU
Q12 2SC4081 (QRS)
Q13 2SC4081 (QRS)
Q14 2SC4081 (QRS)
Q16 DTC144EU
Q17 2SC4081 (QRS)
Q18
Q18 2SA1576 (QRS)
R66 320 fH VCO
R50 REC FM LEVEL
REC 0.48 Vp-p
REC 1.2 Vp-p
REC 1.0 Vp-p
TP11 V. FF
TP4 EMPHASIS
R102 PB BURST LEVEL
R37 DEVIATION
R36 CARRIER
R35 WHITE CLIP
R32 DARK CLIP
Q6 DTC144EU
Q4 DTC144EU
TP1 REC FM
PB 0.24 Vp-p
PB 0.75 Vp-p
PB 0.48 Vp-p
REC/PB 0.32 Vp-p
REC/PB 0.12 Vp-p
PB 0.06 Vp-p
PB 0.4 Vp-p
0.54 Vp-p
0.22 Vp-p
REC 1.0 Vp-p
CAM/EXT
CLAMP
NON LINEAR EMPHASIS DE-EMPH
MAIN EMPHASIS
WHITE & DARK CLIP
DE NC
FM
Y/C MIX
PICTURE CONTROL
NOISE DET
LPF
NORM
IC101 LA7316M
IC2 TL8808F
1H DL
DL101
X101
BPF101
BPF102
TP6 PB COLOR
TP13 REC COLOR
R117 REC COLOR LEVEL
R113 PB COLOR LEVEL
R39 YNR INPUT LEVEL
D102 DAN202U
D101 DAN202U
D4 DAN202U
D7 DAN202U
Q5
Q3
Q7
Q8
CN3
1 NC
16 NC
2 NC
17 V FF
3 VA MUTE
18 COMP SYNC
4 NC
19 V PULSE ON
5 V PULSE
20 REMOTE
6 NC
21 V REC
7 V PB
22 GND
8 NC
23 RM CODE
9 SP
24 NC
10 NC
25 NC
11 GND
26 NC
12 H A MUTE
27 NC
13 NC
28 NA PB
14 N BIAS
29 NC
15 NC
30 NC
From/To 01 MAIN,CN9
AUDIO SECTION
CN1
1 REC 8V
2 PB COLOR
3 REC COLOR
4 PB FM
5 REC FM
6 V GND
7 PB 5V
8 V FF
From/To 09 A/V PRE/REC AMP, F1
R16 PB Y LEVEL
TP2 DEMOD OUT
TP3 YNR INPUT
Q3 2SC4081 (QRS)
Q7 2SA1576 (QRS)
Q5 DTA144EU
Q8 2SC4081 (QRS)

D E F G I J K

5.6 ⚠AUDIO SCHEMATIC DIAGRAM



02 A/V (AUDIO SECTION)
REG 5V
From/To 01 MAIN CN9
CN3
NC
V FF
VA MUTE
COMP SYNC
V PULSE ON
V PULSE
REMOTE
V REC
V PB
GND
RM CODE
SP
A MUTE
NA PB
N BIAS
VIDEO SECTION
Q302 DTC144EU
From/To 06 MIC AMP CN1
CN7
MIC IN
MIC GND
AUDIO REG 5V
A FADER
From 02 A/V (Y/C SECTION)
REG 8V
GND
REG 5V
L301
C345 100/6.3
From 21 VIDEO CN107
CN6
A FADER
IC301 BA7751AF
IC302
IC 302
+5V
GND
IC302 XRA15218F
R320 AUDIO PB LEVEL
Vcc
Vreg
BIAS
REC
ALC VR
LINE
40dB
ALC DET.
BUFF
−26dB
R301 0
R363 68
R364 68
C308 100/6.3
R350 5.6K
R361 100
C309 47/6.3
R312 100
C310 120P
C311 15P
R313 100K
C312 56P
R315 100K
R314 100K
C313 100P
C314 100P
C315 100P
C316 100P
R316 51K
R317 4.7K
R318 330
C317 1
R319 1K
C319 0.1/50
R320 10K
C318 0.0056
C320 0.0022
C301 33/6.3
C302 4.7/6.3
C303 680P
R303 470
R304 82K
C306 330P
C307 0.01
R305 47
R308 6.8K
R307 8.2K
R306 330K
C304 0.0033
C305 1/50
R352 1.5K
C330 0.01
C331 0.0022
L303
C332 0.0056
C333 0.01
R329 150
R362 0
C329 47/6.3
R328 27K
C327 0.0015
C328 1
R330 12K
C346 0.027
C323 33/6.3
R322 8.2K
R326 47K
R335 BIAS LEVEL
TP303 AUDIO OUT
C326 1/50
C324 4.7/25
R325 33K
R321 3.3K
C321 0.001
R327 100K
C322 33/6.3
R323 22K
R324 1M
C325 10/16
Q304 FMW3
R332 2.7K
R333 10K
Q303 DTA143EU
C334 10/16
R334 100
TP302 AUDIO BIAS −
TP301 AUDIO BIAS +
R331 10
R335 47K
C335 0.001
C336 0.033
L304
Q305 2SC4097 (RS)
R338 33K
R336 0
C337 560P
R337 8.2
C338 0.0039
L302 47
Q306 DTA143EU
Q307 FMG1
R339 10K
C339 47/16
Q308 DTA143EU
REG 8V
R340 5.6K
R341 10K
Q311, Q312 2SC4081 (RS)
R359 5.6K
R360 5.6K
Q312
Q311
C348 33/6.3
R358 100
R357 100K
R349 100
R348 100K
C343 33/6.3
IC 303
XRA15218F
+8V
C342 0.1
R345 10K
R347 56K
R346 12K
R356 100
C341 47/16
C347 33/10
C344 1/50
Q314
R355 1K
C349 0.001
R354 1K
R353 5.6K
Q313
Q313, Q314 2SC4081 (RS)
CN2
AUDIO ERASE
REC/PB
CN4
RM CODE
PHONE GND
PHONE L
PHONE R
DUB SW
AUDIO GND
AUDIO R OUT
AUDIO L OUT
REMOTE
VIDEO GND
VIDEO OUT
REG 8V
VIDEO SECTION
From/To 03 JACK CN1

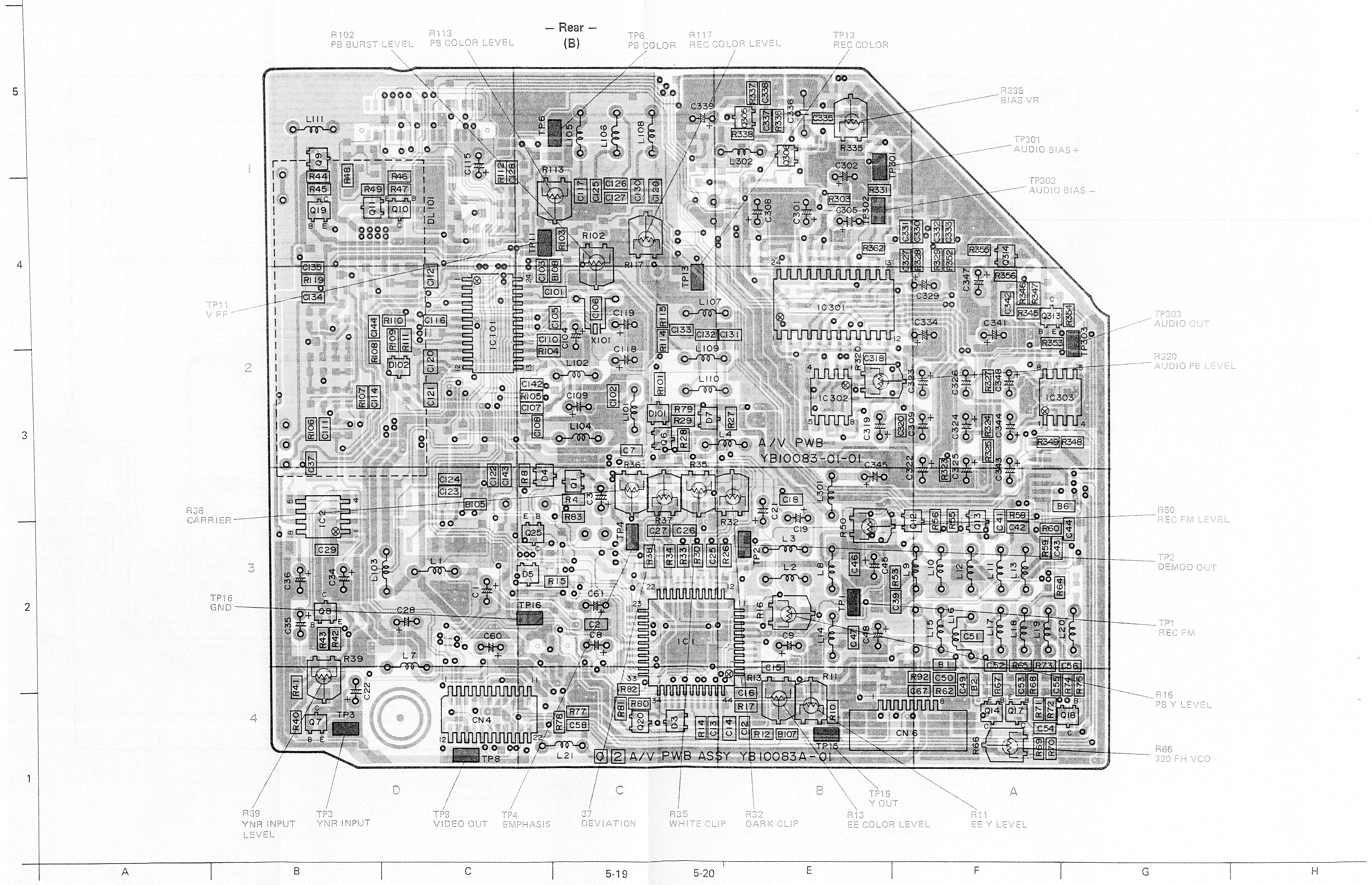
● Voltage
REC : EXT input, 1 kHz, −8 dBs SP mode.
PB : REC then PB
*Where voltage differ between recording and palyabck, the voltage during playback is shown in parenthesis.

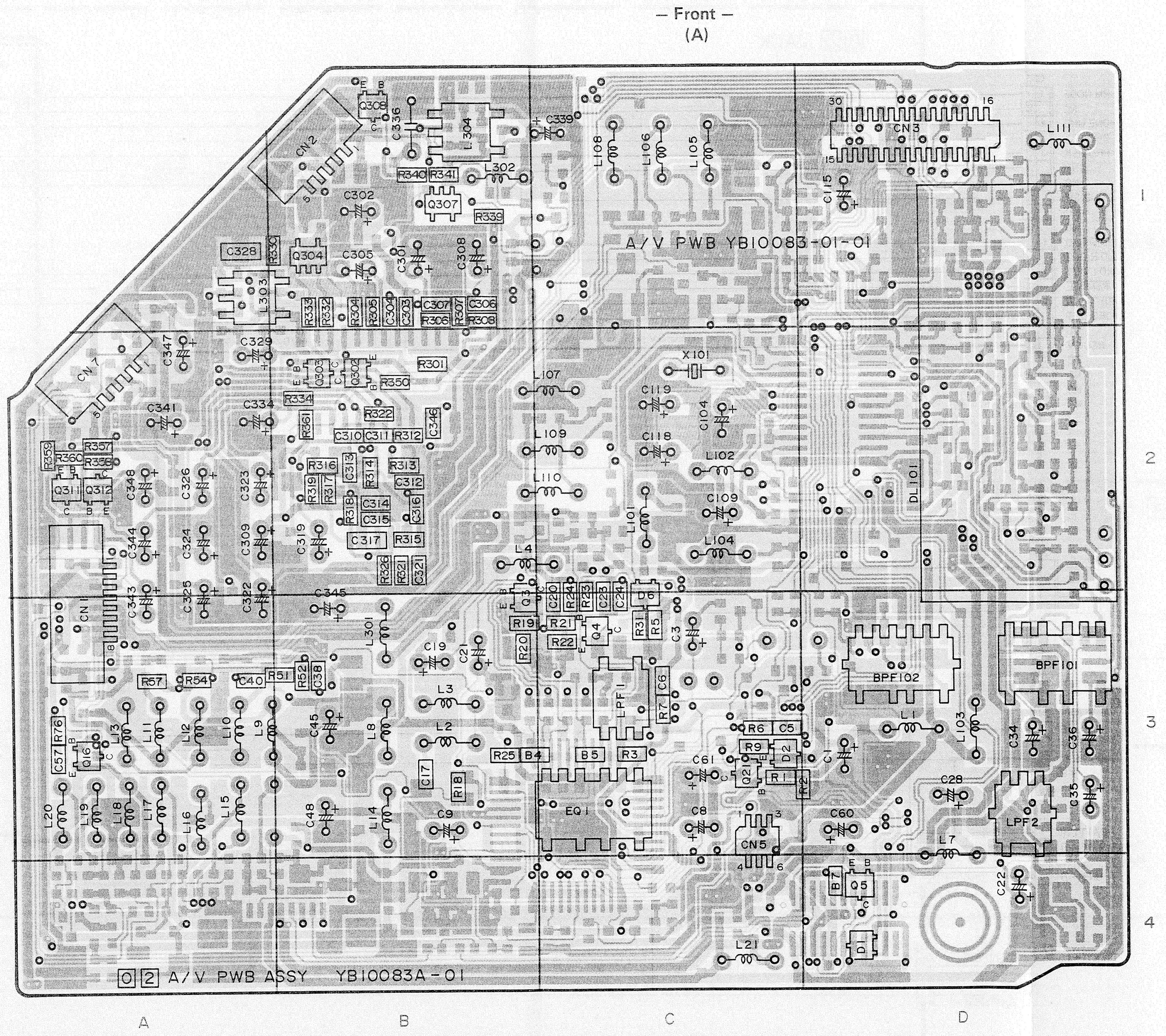
● Shaded (▨) parts are critical for safety. Replace only with specified part numbers.

● Address of chip parts
A-1D
Address
A : Discrete parts side
B : Chip parts side

● SIGNAL PATH
⇦ REC
⇦ PB
⇦ REC & PB

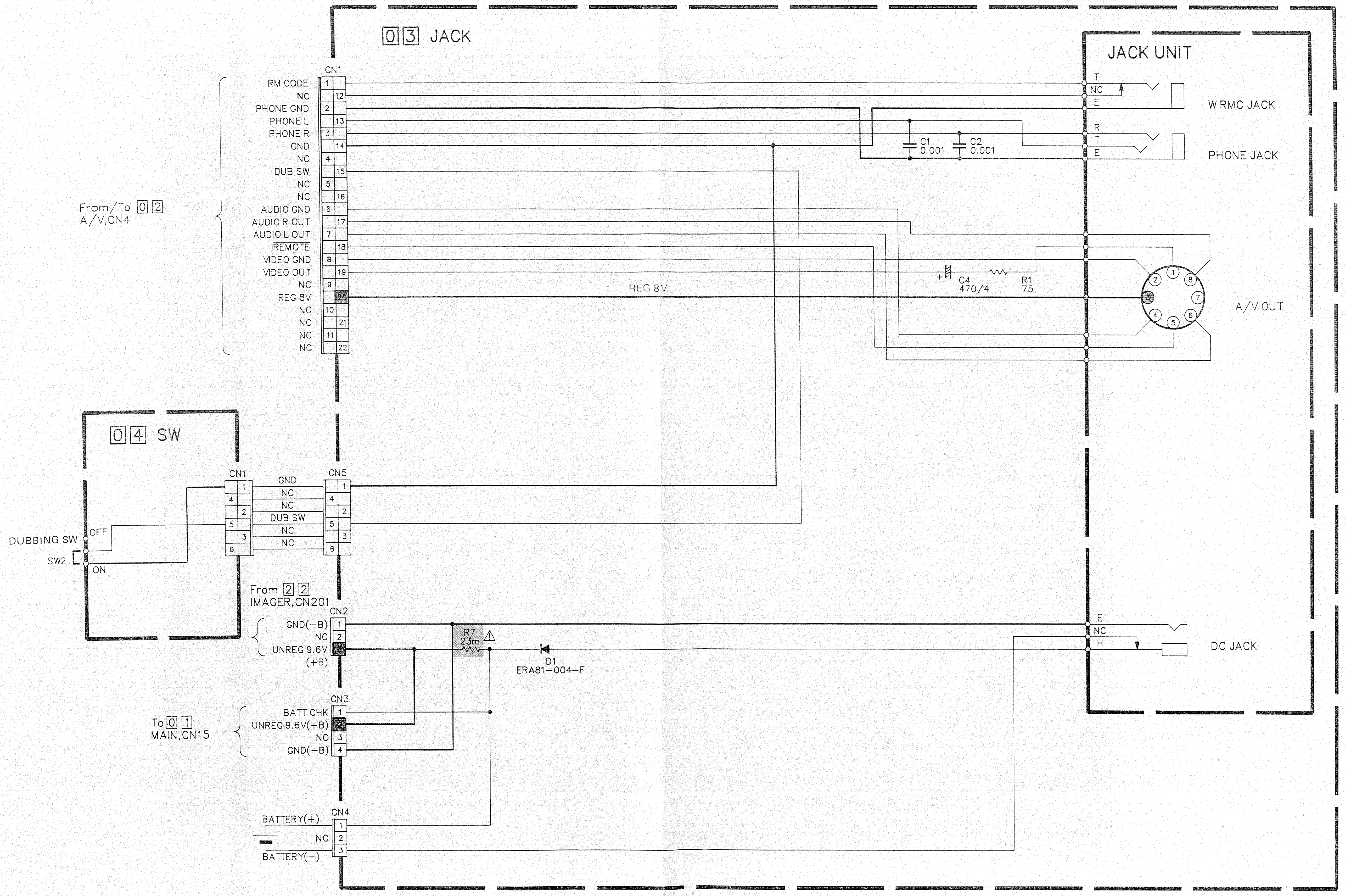
5.7 A/V CIRCUIT BOARD


6
5
4
3
2
1
– Rear –
(B)
R102
PB BURST LEVEL
R113
PB COLOR LEVEL
TP6
PB COLOR
R117
REC COLOR LEVEL
TP13
REC COLOR
R335
BIAS VR
TP301
AUDIO BIAS +
TP302
AUDIO BIAS –
TP303
AUDIO OUT
R320
AUDIO PB LEVEL
R50
REC FM LEVEL
TP2
DEMOD OUT
TP1
REC FM
R16
PB Y LEVEL
R66
320 FH VCO
TP11
V FF
R36
CARRIER
TP16
GND
A/V PWB
YB10083-01-01
0 2 A/V PWB ASSY YB10083A-01
R39
YNR INPUT
LEVEL
TP3
YNR INPUT
TP8
VIDEO OUT
TP4
EMPHASIS
37
DEVIATION
R35
WHITE CLIP
R32
DARK CLIP
R13
EE COLOR LEVEL
TP15
Y OUT
R11
EE Y LEVEL
D
C
B
A
A
B
C
E
F
G
H


— Front —
(A)
A/V PWB YB10083-01-01
02 A/V PWB ASSY YB10083A-01
CN1
CN2
CN3
CN5
CN7
BPF101
BPF102
LPF1
LPF2
EQ1
DL101
X101
L304
L303
L301
Q307
Q304
Q311
Q312
Q16
Q2
Q3
Q4
Q5
1
2
3
4
A
B
C
D

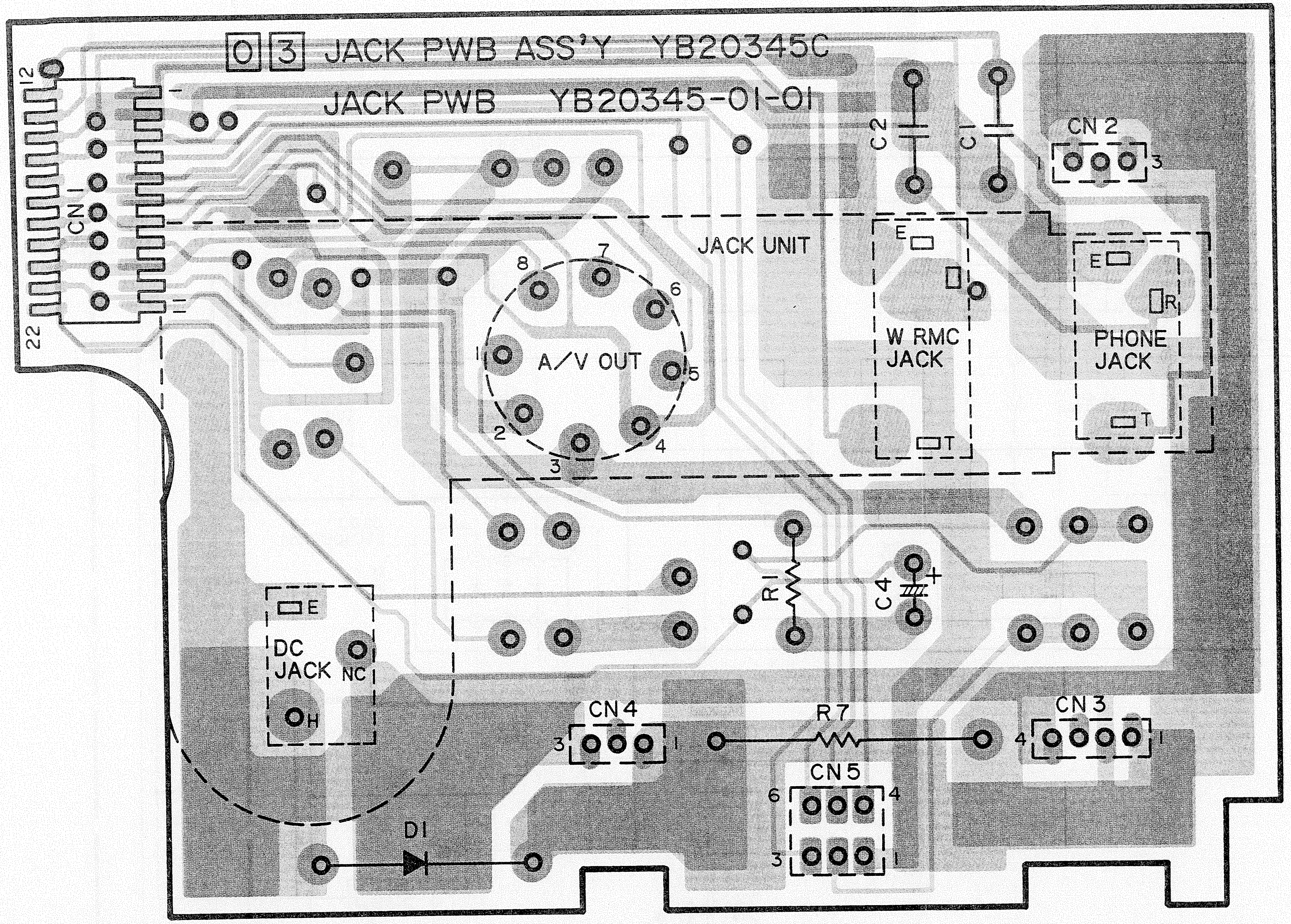
5.8 JACK SCHEMATIC DIAGRAM

- Shaded (▨) parts are critical for safety.
Replace only with specified part numbers.

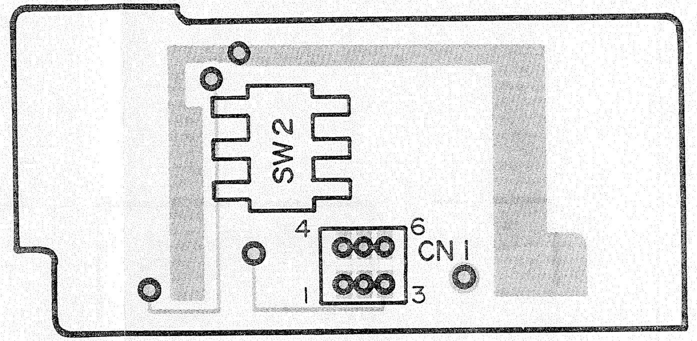


03 JACK
JACK UNIT
CN1
RM CODE
NC
PHONE GND
PHONE L
PHONE R
GND
NC
DUB SW
NC
NC
AUDIO GND
AUDIO R OUT
AUDIO L OUT
REMOTE
VIDEO GND
VIDEO OUT
NC
REG 8V
NC
NC
NC
NC
From/To 02 A/V,CN4
T
NC
E
W RMC JACK
R
T
E
PHONE JACK
C1 0.001
C2 0.001
C4 470/4
R1 75
REG 8V
A/V OUT
04 SW
CN1
GND
NC
NC
DUB SW
NC
NC
CN5
DUBBING SW
OFF
SW2
ON
From 22 IMAGER,CN201
CN2
GND(−B)
NC
UNREG 9.6V (+B)
R7 23m
D1 ERA81−004−F
E
NC
H
DC JACK
CN3
To 01 MAIN,CN15
BATT CHK
UNREG 9.6V(+B)
NC
GND(−B)
CN4
BATTERY(+)
NC
BATTERY(−)

5.9 JACK & SWITCH CIRCUIT BOARDS

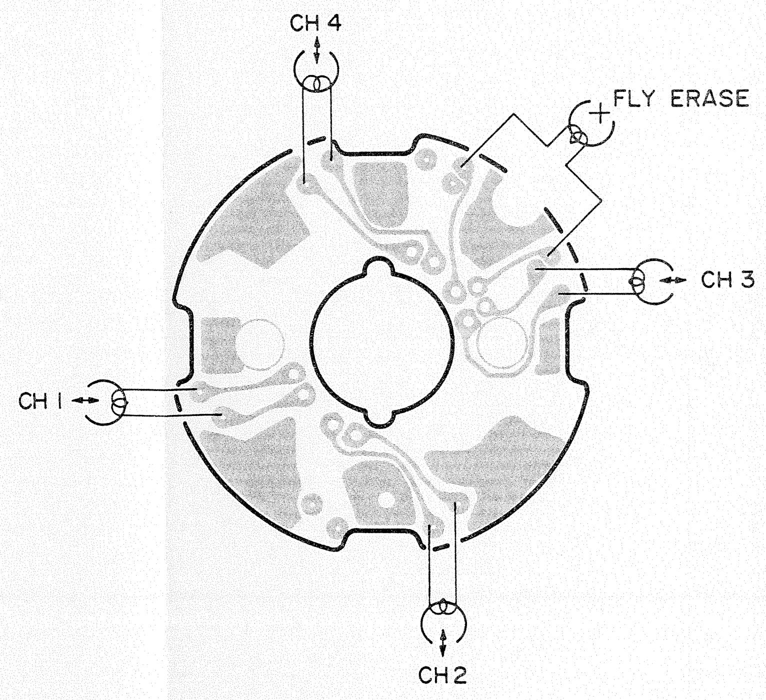

03 JACK PWB ASS'Y YB20345C
JACK PWB YB20345-01-01
12
22
CN1
C2
C1
CN2
1
3
JACK UNIT
8
7
6
1
A/V OUT
5
2
3
4
E
W RMC JACK
T
E
R
PHONE JACK
T
R1
C4
+
E
DC JACK
NC
H
CN4
3
1
R7
CN3
4
1
CN5
6
4
3
1
D1

– SWITCH –


SW2
4
6
CN1
1
3

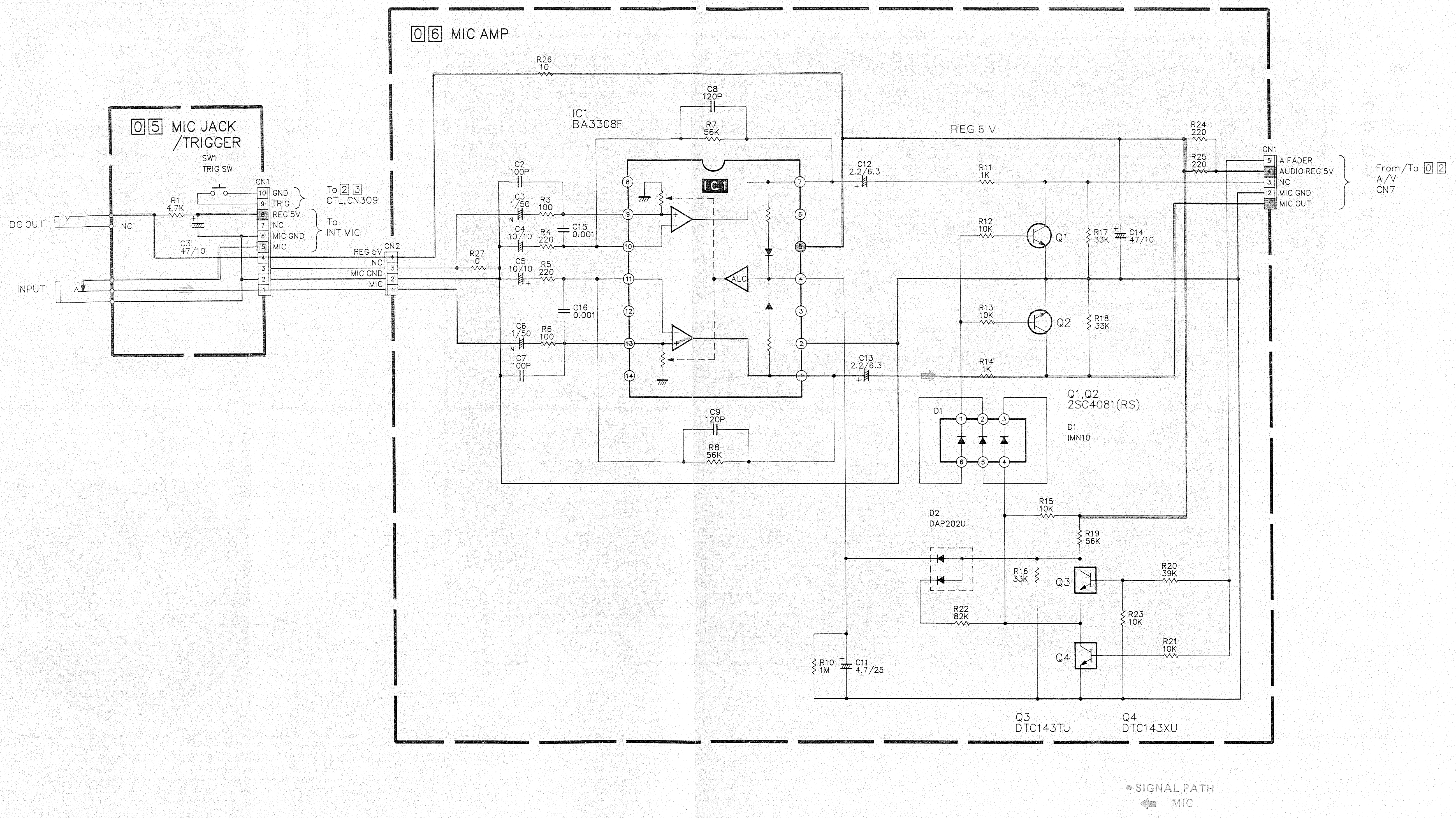
04 SW PWB ASS'Y YB20388C
SW PWB YB20388

– UPPER DRUM –


CH 4
FLY ERASE
+
CH 3
CH 1
CH 2

31 UPPER DRUM PWB
YDM3055

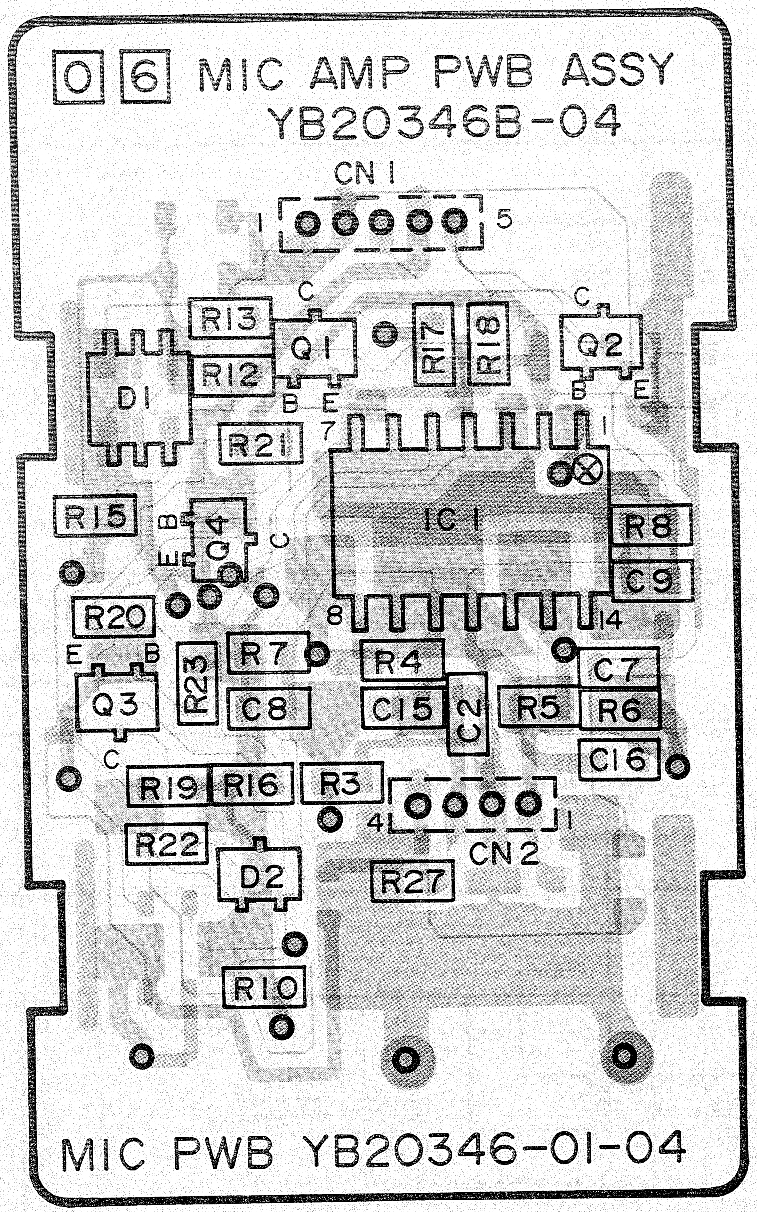
5.10 MIC AMP SCHEMATIC DIAGRAM



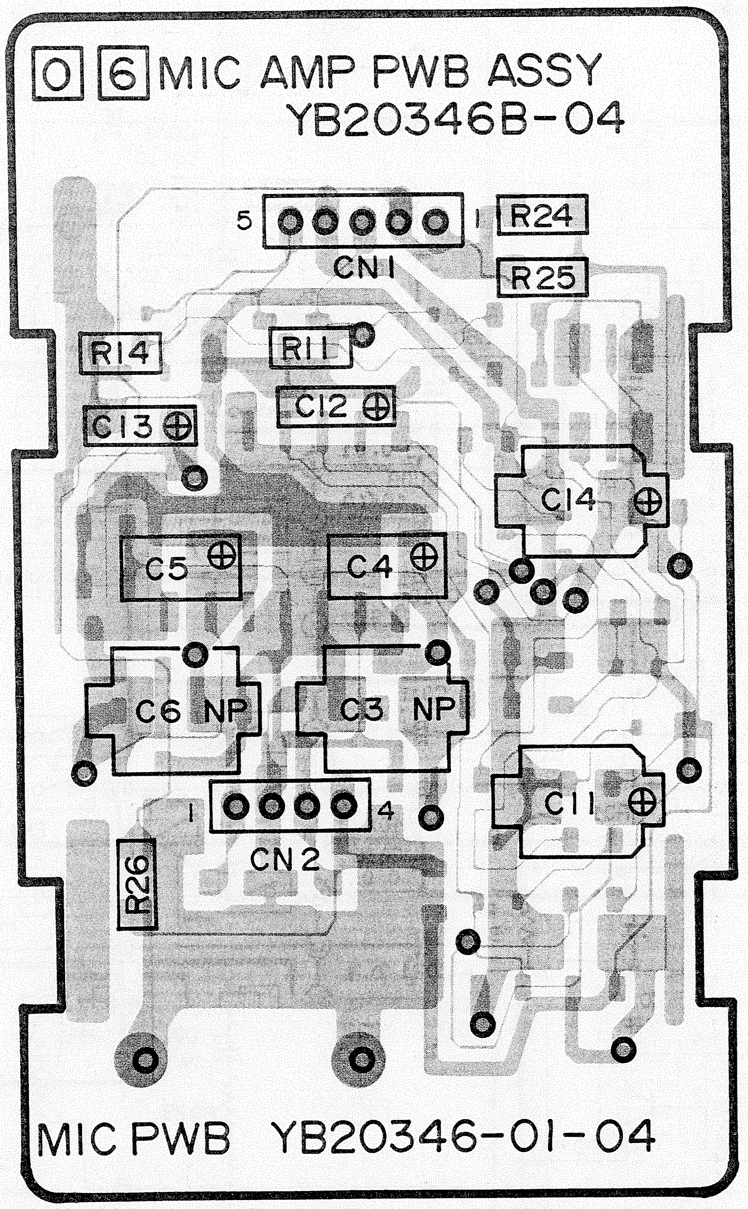
05 MIC JACK /TRIGGER
SW1 TRIG SW
CN1
10 GND
9 TRIG
8 REG 5V
7 NC
6 MIC GND
5 MIC
4
3
2
1
To 23 CTL,CN309
To INT MIC
R1 4.7K
C3 47/10
DC OUT
NC
INPUT
CN2
REG 5V
NC
MIC GND
MIC
06 MIC AMP
R26 10
C8 120P
R7 56K
IC1 BA3308F
IC1
C2 100P
C3 1/50
R3 100
C4 10/10
R4 220
C15 0.001
R27 0
C5 10/10
R5 220
C16 0.001
C6 1/50
R6 100
C7 100P
ALC
C9 120P
R8 56K
REG 5 V
C12 2.2/6.3
R11 1K
R12 10K
Q1
R17 33K
C14 47/10
R13 10K
Q2
R18 33K
C13 2.2/6.3
R14 1K
R24 220
R25 220
CN1
5 A FADER
4 AUDIO REG 5V
3 NC
2 MIC GND
1 MIC OUT
From/To 02 A/V CN7
Q1,Q2 2SC4081(RS)
D1 IMN10
D1
D2 DAP202U
R15 10K
R19 56K
R16 33K
Q3
R20 39K
R22 82K
R23 10K
R21 10K
Q4
R10 1M
C11 4.7/25
Q3 DTC143TU
Q4 DTC143XU
SIGNAL PATH
MIC

5.11 MIC AMP & MIC JACK CIRCUIT BOARDS

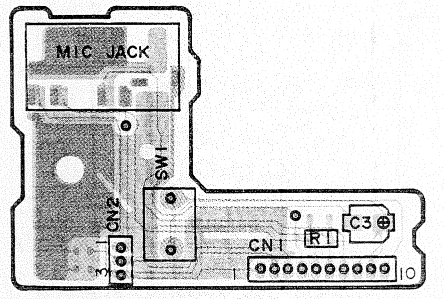
— Rear —
(B)


06 MIC AMP PWB ASSY
YB20346B-04
CN1
1
5
R13
R12
C
Q1
B
E
R17
R18
C
Q2
B
E
D1
R21
7
1
IC1
R15
B
Q4
E
C
R8
C9
R20
8
14
E
B
Q3
C
R23
R7
C8
R4
C15
C2
R5
C7
R6
C16
R19
R16
R3
4
CN2
1
R22
D2
R27
R10
MIC PWB YB20346-01-04

— Front —
(A)


06 MIC AMP PWB ASSY
YB20346B-04
5
CN1
1
R24
R25
R14
R11
C12
C13
C14
C5
C4
C6 NP
C3 NP
C11
1
CN2
4
R26
MIC PWB YB20346-01-04

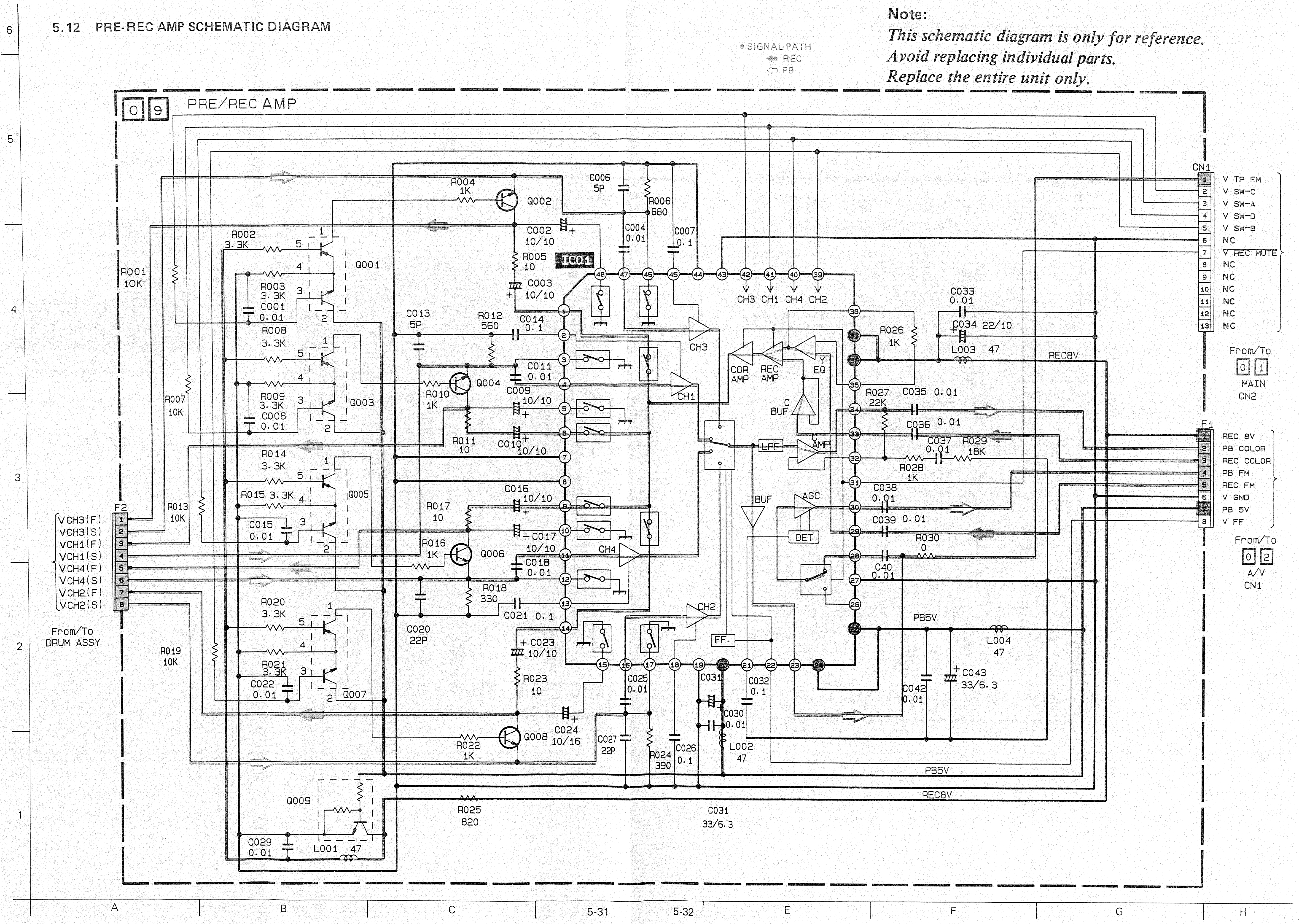
— MIC JACK —


MIC JACK
SW1
CN2
3
1
C3
R1
CN1
1
10

05 MIC JACK PWB ASS'Y YB20393B1
MIC JACK PWB YB20393

5.12 PRE-REC AMP SCHEMATIC DIAGRAM

Note:
This schematic diagram is only for reference.
Avoid replacing individual parts.
Replace the entire unit only.

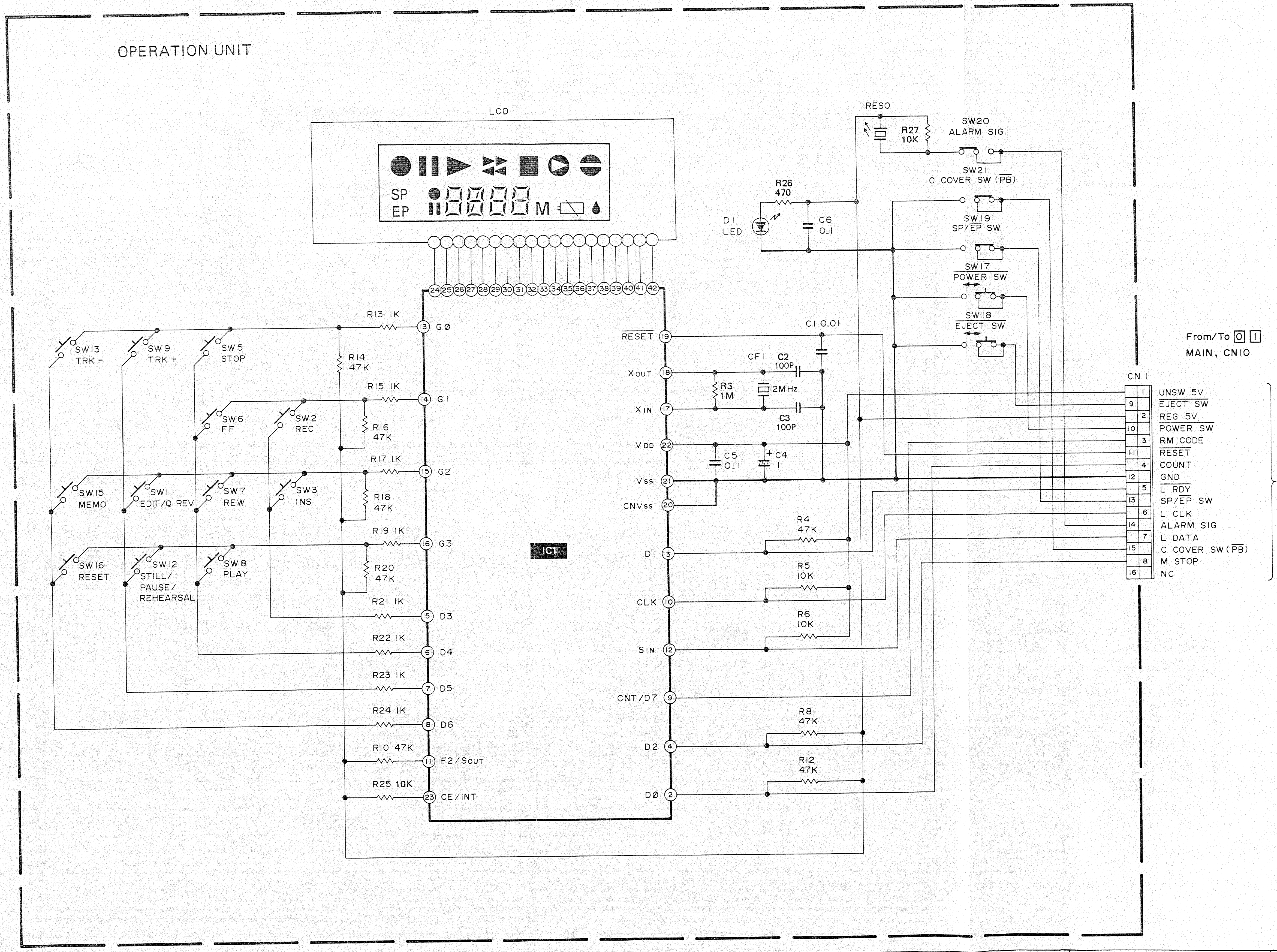


SIGNAL PATH
REC
PB
0 9
PRE/REC AMP
IC01
Q001
Q002
Q003
Q004
Q005
Q006
Q007
Q008
Q009
R001 10K
R002 3.3K
R003 3.3K
R004 1K
R005 10
R006 680
R007 10K
R008 3.3K
R009 3.3K
R010 1K
R011 10
R012 560
R013 10K
R014 3.3K
R015 3.3K
R016 1K
R017 10
R018 330
R019 10K
R020 3.3K
R021 3.3K
R022 1K
R023 10
R024 390
R025 820
R026 1K
R027 22K
R028 1K
R029 18K
R030 0
C001 0.01
C002 10/10
C003 10/10
C004 0.01
C006 5P
C007 0.1
C008 0.01
C009 10/10
C010 10/10
C011 0.01
C013 5P
C014 0.1
C015 0.01
C016 10/10
C017 10/10
C018 0.01
C020 22P
C021 0.1
C022 0.01
C023 10/10
C024 10/16
C025 0.01
C026 0.1
C027 22P
C029 0.01
C030 0.01
C031
C031 33/6.3
C032 0.1
C033 0.01
C034 22/10
C035 0.01
C036 0.01
C037 0.01
C038 0.01
C039 0.01
C40 0.01
C042 0.01
C043 33/6.3
L001 47
L002 47
L003 47
L004 47
CH1
CH2
CH3
CH4
COR AMP
REC AMP
Y EQ
C BUF
C AMP
LPF
BUF
AGC
DET
FF.
REC8V
PB5V
CH3 CH1 CH4 CH2
F2
VCH3(F)
VCH3(S)
VCH1(F)
VCH1(S)
VCH4(F)
VCH4(S)
VCH2(F)
VCH2(S)
From/To DRUM ASSY
CN1
1 V TP FM
2 V SW-C
3 V SW-A
4 V SW-D
5 V SW-B
6 NC
7 V REC MUTE
8 NC
9 NC
10 NC
11 NC
12 NC
13 NC
From/To 0 1 MAIN CN2
F1
1 REC 8V
2 PB COLOR
3 REC COLOR
4 PB FM
5 REC FM
6 V GND
7 PB 5V
8 V FF
From/To 0 2 A/V CN1
6
5
4
3
2
1
A
B
C
E
F
G
H

5.13 OPERATION UNIT SCHEMATIC DIAGRAM

Note:

This schematic diagram is only for reference.
Avoid replacing individual parts.
Replace the entire unit only.


OPERATION UNIT
LCD
SP
EP
M
24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42
IC1
SW13 TRK −
SW9 TRK +
SW5 STOP
SW6 FF
SW2 REC
SW15 MEMO
SW11 EDIT/Q REV
SW7 REW
SW3 INS
SW16 RESET
SW12 STILL/ PAUSE/ REHEARSAL
SW8 PLAY
R13 1K
R14 47K
R15 1K
R16 47K
R17 1K
R18 47K
R19 1K
R20 47K
R21 1K
R22 1K
R23 1K
R24 1K
R10 47K
R25 10K
13 G0
14 G1
15 G2
16 G3
5 D3
6 D4
7 D5
8 D6
11 F2/Sout
23 CE/INT
19 RESET
18 Xout
17 Xin
22 VDD
21 Vss
20 CNVss
3 D1
10 CLK
12 SIN
9 CNT/D7
4 D2
2 D0
C1 0.01
CF1
C2 100P
R3 1M
2MHz
C3 100P
C5 0.1
C4 1
R4 47K
R5 10K
R6 10K
R8 47K
R12 47K
D1 LED
R26 470
C6 0.1
RESO
R27 10K
SW20 ALARM SIG
SW21 C COVER SW (PB)
SW19 SP/EP SW
SW17 POWER SW
SW18 EJECT SW
From/To ⓪ ①
MAIN, CN10
CN1
1 UNSW 5V
9 EJECT SW
2 REG 5V
10 POWER SW
3 RM CODE
11 RESET
4 COUNT
12 GND
5 L RDY
13 SP/EP SW
6 L CLK
14 ALARM SIG
7 L DATA
15 C COVER SW (PB)
8 M STOP
16 NC

5.14 IMAGER SCHEMATIC DIAGRAM

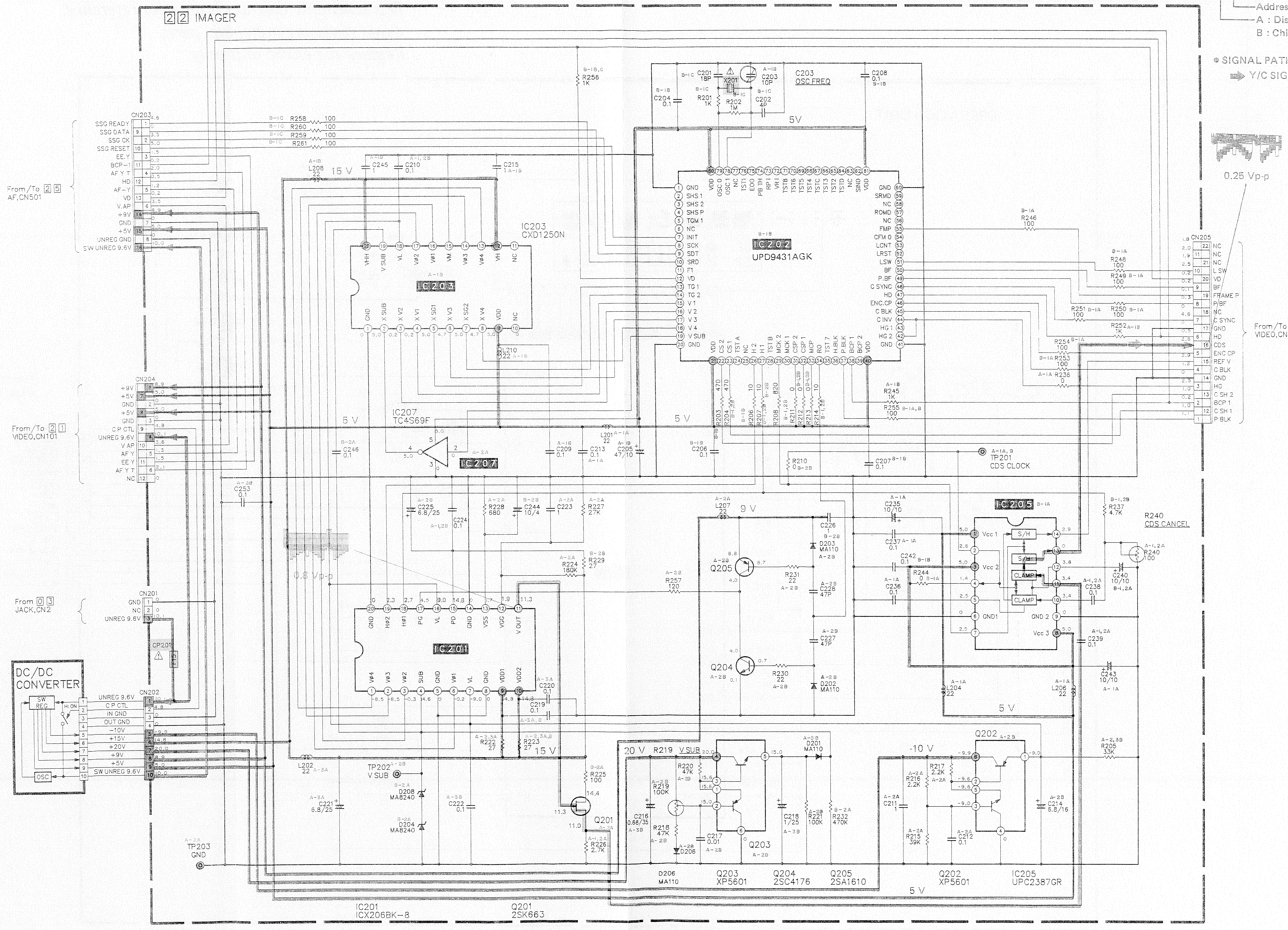
● Shaded ( ) parts are critical for safety.
Replace only with specified part numbers.

● Voltage : Measured as the color bar pattern which lighted up brightly is shot in the rehersal mode.

● Waveform : Measured as the gray scale or color bar pattern which light up brightly is shot in the rehersal mode.

● Address of chip parts
A-1D
—Address
—A : Discrete parts side
B : Chip parts side

● SIGNAL PATH
➡ Y/C SIGNAL



2 2 IMAGER
CN203
SSG READY
SSG DATA
SSG CK
SSG RESET
EE.Y
BCP-1
AF Y T
HD
AF-Y
VD
V.AP
+9V
GND
+5V
UNREG GND
SW UNREG 9.6V
From/To 2 5 AF.CN501
R258 100
R260 100
R259 100
R261 100
L208 22
15 V
C245
C210 0.1
C215
IC203 CXD1250N
IC203
R256 1K
C201 18P
X201
C203 10P
C203 OSC FREQ
C208 0.1
C204 0.1
R201 1K
R202 1M
C202 4P
5V
IC202
UPD9431AGK
GND
SHS 1
SHS 2
SHS P
TGM 1
NC
INIT
SCK
SDT
SRD
F1
VD
TG 1
TG 2
V 1
V 2
V 3
V 4
V SUB
SRMD
ROMD
FMP
CFM 0
LCNT
LRST
LSW
BF
P.BF
C SYNC
ENC.CP
C BLK
C INV
HG 1
HG 2
CN204
+9V
+5V
GND
+5V
GND
C P CTL
UNREG 9.6V
V AP
AF Y
EE Y
AF Y T
NC
From/To 2 1 VIDEO,CN101
5 V
IC207 TC4S69F
IC207
C246 0.1
L210 22
C209 0.1
C213 0.1
L201 22
C205 47/10
C206 0.1
R210 0
C207 0.1
TP201 CDS CLOCK
R246 100
R248 100
R249 100
R251 100
R250 100
R252 1K
R254 100
R253 100
R236 0
R245 1K
R255 100
CN205
NC
L SW
VD
BF
FRAME P
P/BF
C SYNC
HD
CDS
ENC CP
REF V
C BLK
HG
C SH 2
BCP 1
C SH 1
P BLK
From/To 2 1 VIDEO,CN102
0.25 Vp-p
C253 0.1
C225 6.8/25
C224 0.1
R228 680
C244 10/4
C223 1
R227 27K
0.8 Vp-p
R224 180K
R229 27
IC201
GND
VOUT
VDD1
VDD2
CN201
GND
NC
UNREG 9.6V
From 0 3 JACK,CN2
CP201
DC/DC CONVERTER
SW REG
OSC
CN202
UNREG 9.6V
C P CTL
IN GND
OUT GND
-10V
+15V
+20V
+9V
+5V
SW UNREG 9.6V
L202 22
TP202 V SUB
D208 MA8240
D204 MA8240
C221 6.8/25
C222 0.1
R222 27
R223 27
C220 0.1
C219 0.1
15 V
R225 100
Q201
R226 2.7K
TP203 GND
L207 22
9 V
Q205
Q204
R257 120
R231 22
R230 22
C226 1
D203 MA110
D202 MA110
C228 47P
C227 47P
IC205
Vcc 1
Vcc 2
Vcc 3
S/H
CLAMP
GND1
GND 2
C235 10/10
C237 0.1
C242 0.1
C236 0.1
R244 0
R237 4.7K
R240 CDS CANCEL
R240 100
C240 10/10
C238 0.1
C239 0.1
C243 10/10
L204 22
L206 22
5 V
20 V
R219
V SUB
R220 47K
R219 100K
C216 0.68/35
R218 47K
D206
C217 0.01
Q203
C218 1/25
R221 100K
R232 470K
D201 MA110
-10 V
Q202
R217 2.2K
R216 2.2K
C211 1
R215 39K
C212 0.1
C214 6.8/16
R205 33K
D206 MA110
Q203 XP5601
Q204 2SC4176
Q205 2SA1610
Q202 XP5601
IC205 UPC2387GR
IC201 ICX206BK-8
Q201 2SK663
5 V

6

5.15 IMAGER CIRCUIT BOARD

5

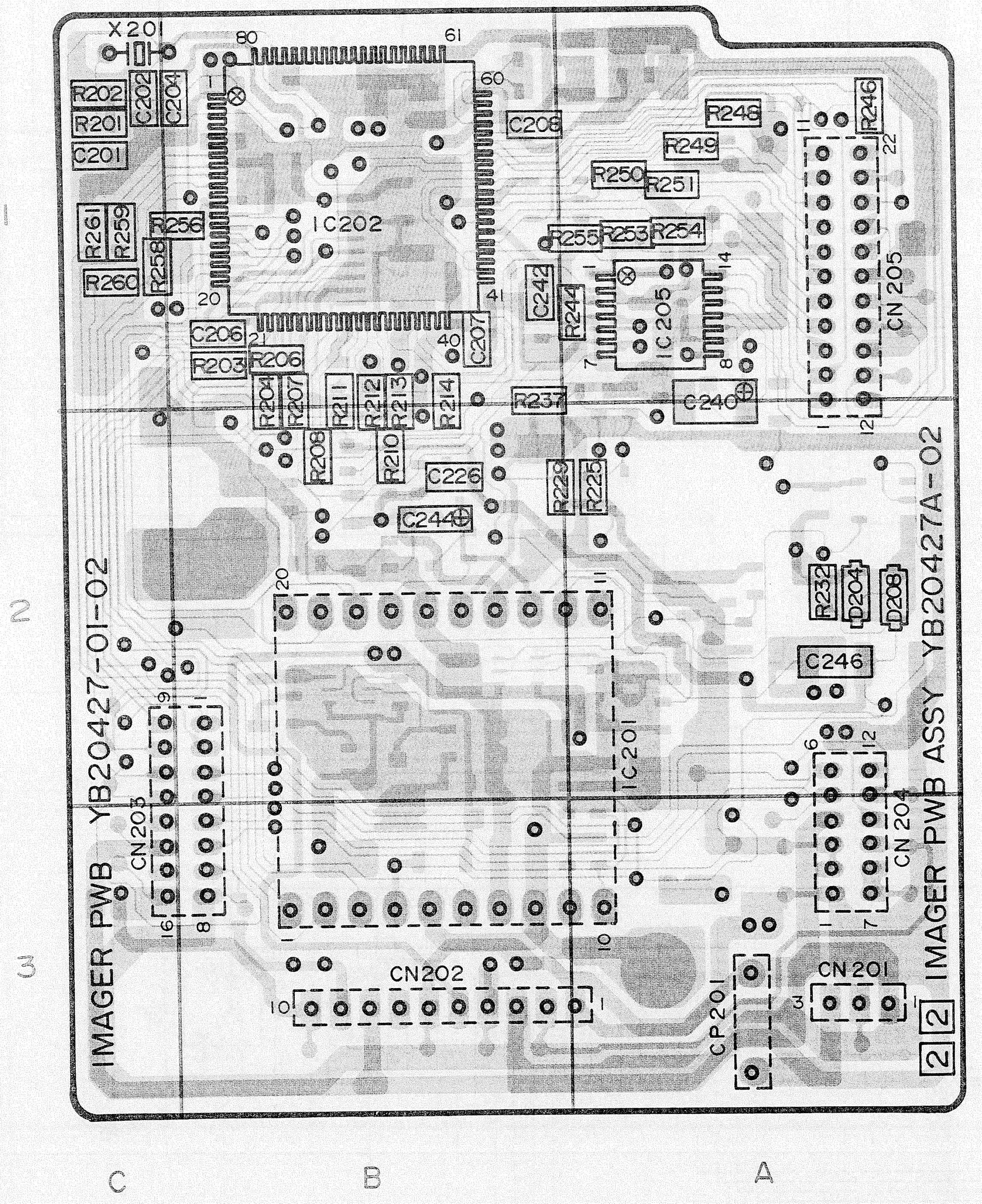
4

3

2

1

– Rear –
(B)

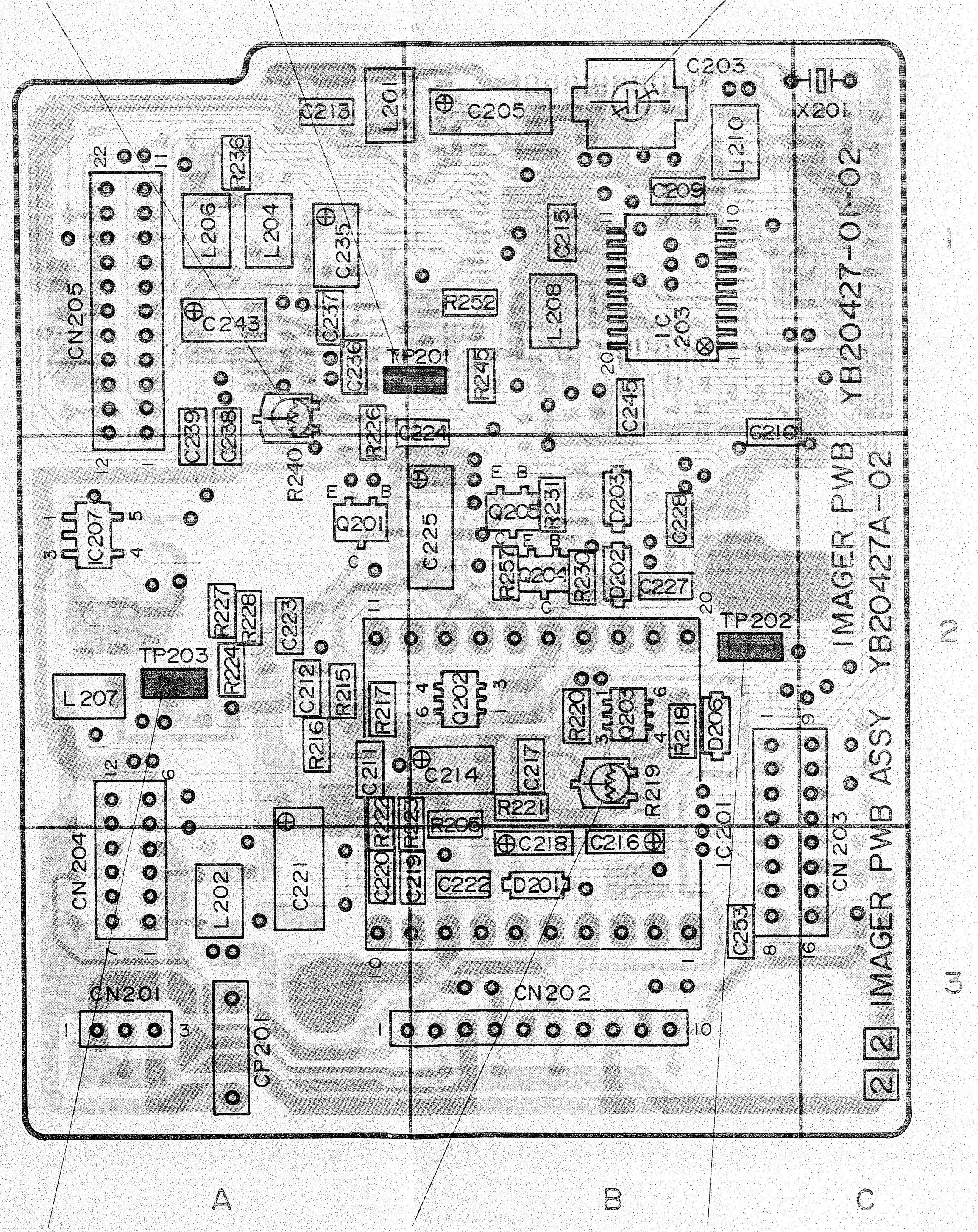

X201
80
61
60
R202
R201
C201
C202
C204
IC202
R261
R259
R256
R258
R260
20
41
40
21
C206
R203
R206
R204
R207
R208
R211
R212
R213
R210
R214
C207
C208
R248
R249
R250
R251
R255
R253
R254
R246
C242
R244
IC205
C240
R237
C226
C244
R229
R225
CN205
11
22
1
12
R232
D204
D208
C246
IC201
CN204
CN203
CN202
CN201
CP201
YB20427-01-02
IMAGER PWB
YB20427A-02
IMAGER PWB ASSY
2
1
2
3
C
B
A

R240
CDS CANCEL

TP201
CDS CLOCK

– Front –
(A)

C203
OSC FREQ


C213
L201
C205
C203
X201
R236
L206
L204
C235
C243
C237
C236
TP201
R252
L208
C215
C209
L210
IC203
R245
C245
C210
CN205
R240
C239
C238
R226
C224
Q201
C225
Q205
R231
D203
C228
Q204
R257
R230
D202
C227
IC207
C223
R227
R228
R224
TP203
L207
C212
R215
R217
R216
Q202
Q203
R220
R218
D206
TP202
C211
C214
C217
R219
R221
R205
C218
C216
C220
R222
C219
R223
C222
D201
IC201
C253
CN204
L202
C221
CN203
CN201
CP201
CN202
YB20427-01-02
IMAGER PWB
YB20427A-02
IMAGER PWB ASSY
1
2
3
A
B
C

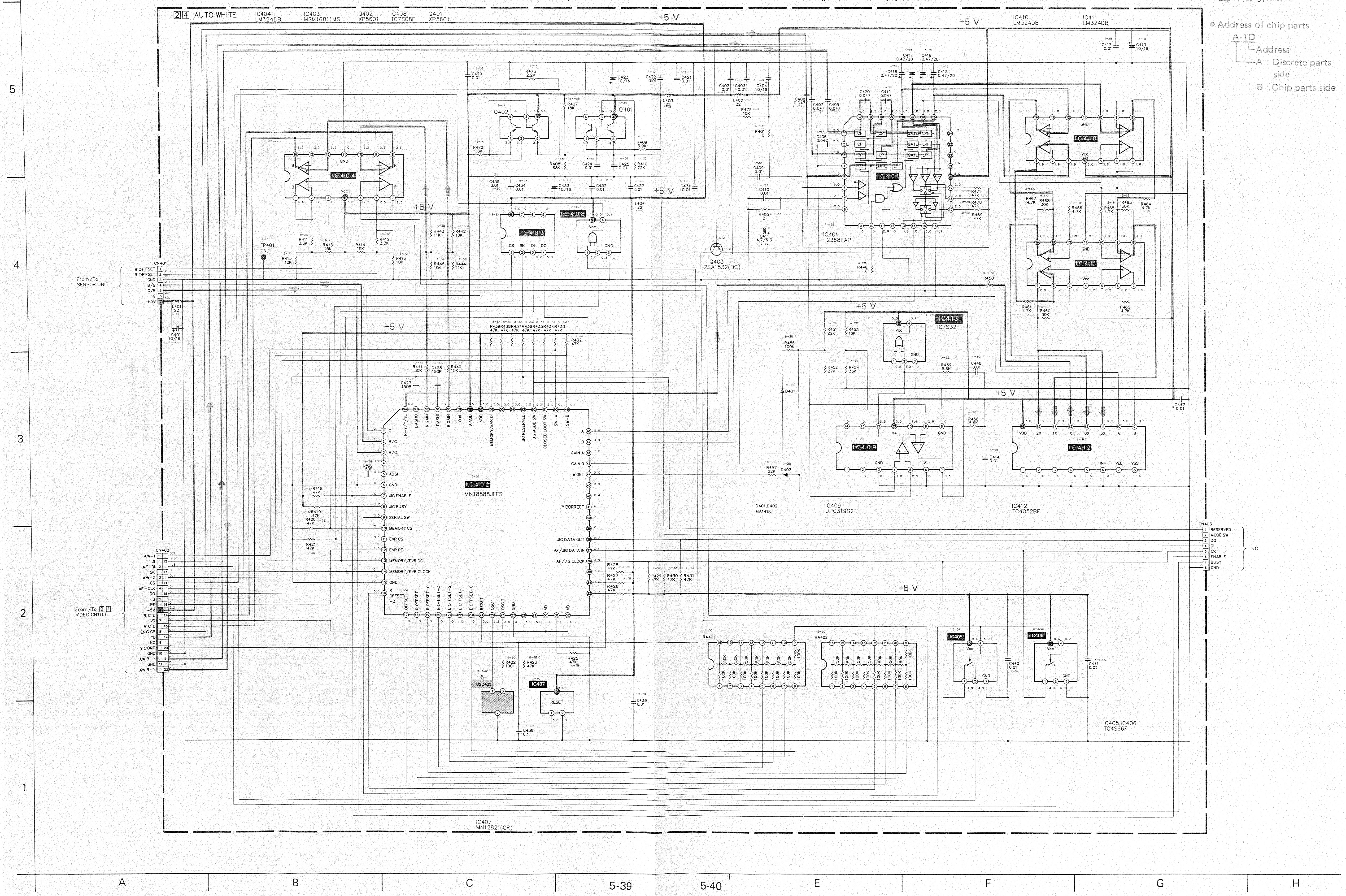
TP203
GND

R219
V SUB

TP202
V SUB

5.16 AUTO WHITE SCHEMATIC DIAGRAM

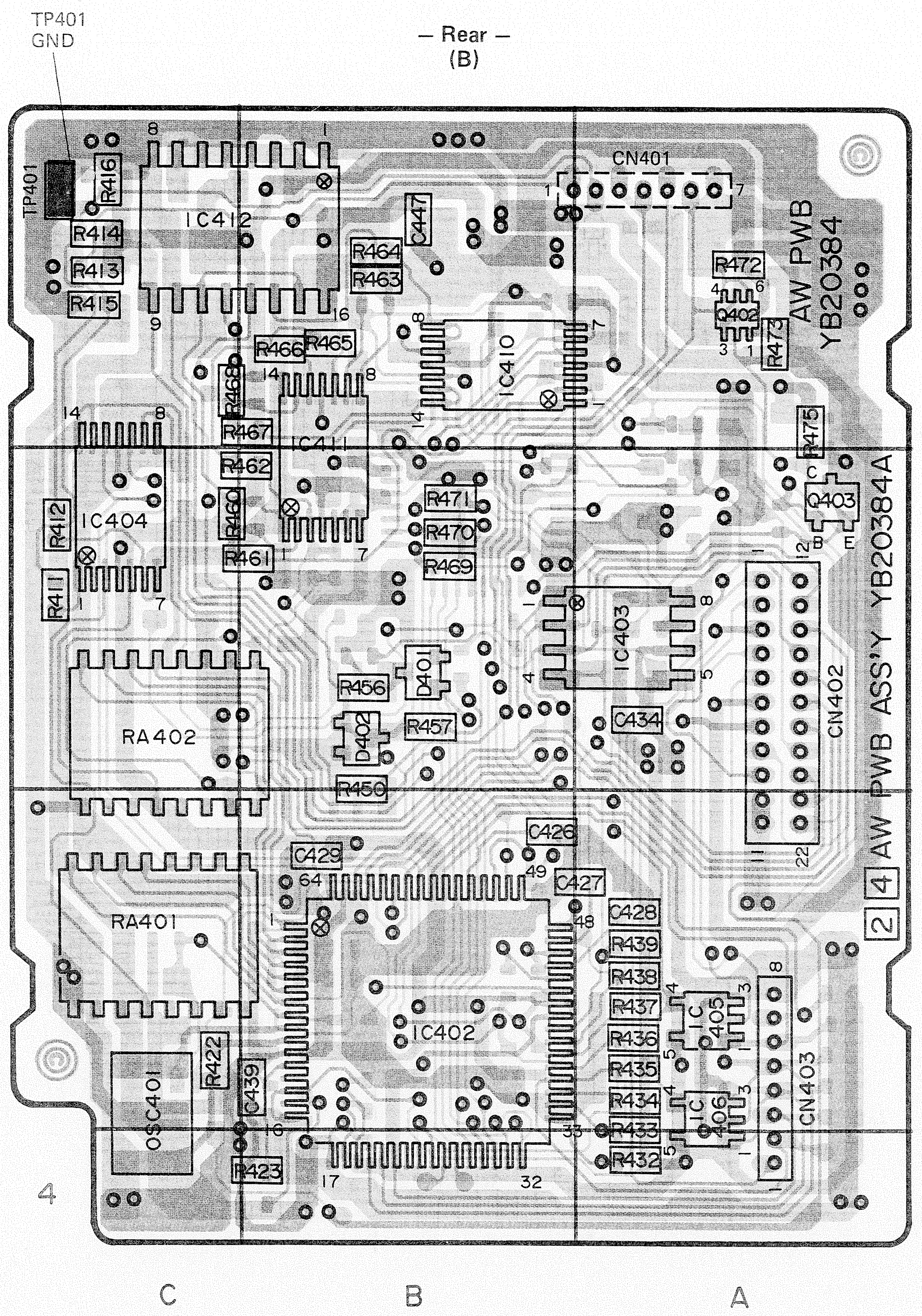
- Shaded (▨) parts are critical for safety.
  Replace only with specified part numbers.
- Voltage : Measured as the color bar pattern which lighted up brightly is shot in the rehersal mode.
- SIGNAL PATH
  ⇨ AW SIGNAL
- Address of chip parts
  A-1D
  └Address
  └A : Discrete parts side
  B : Chip parts side



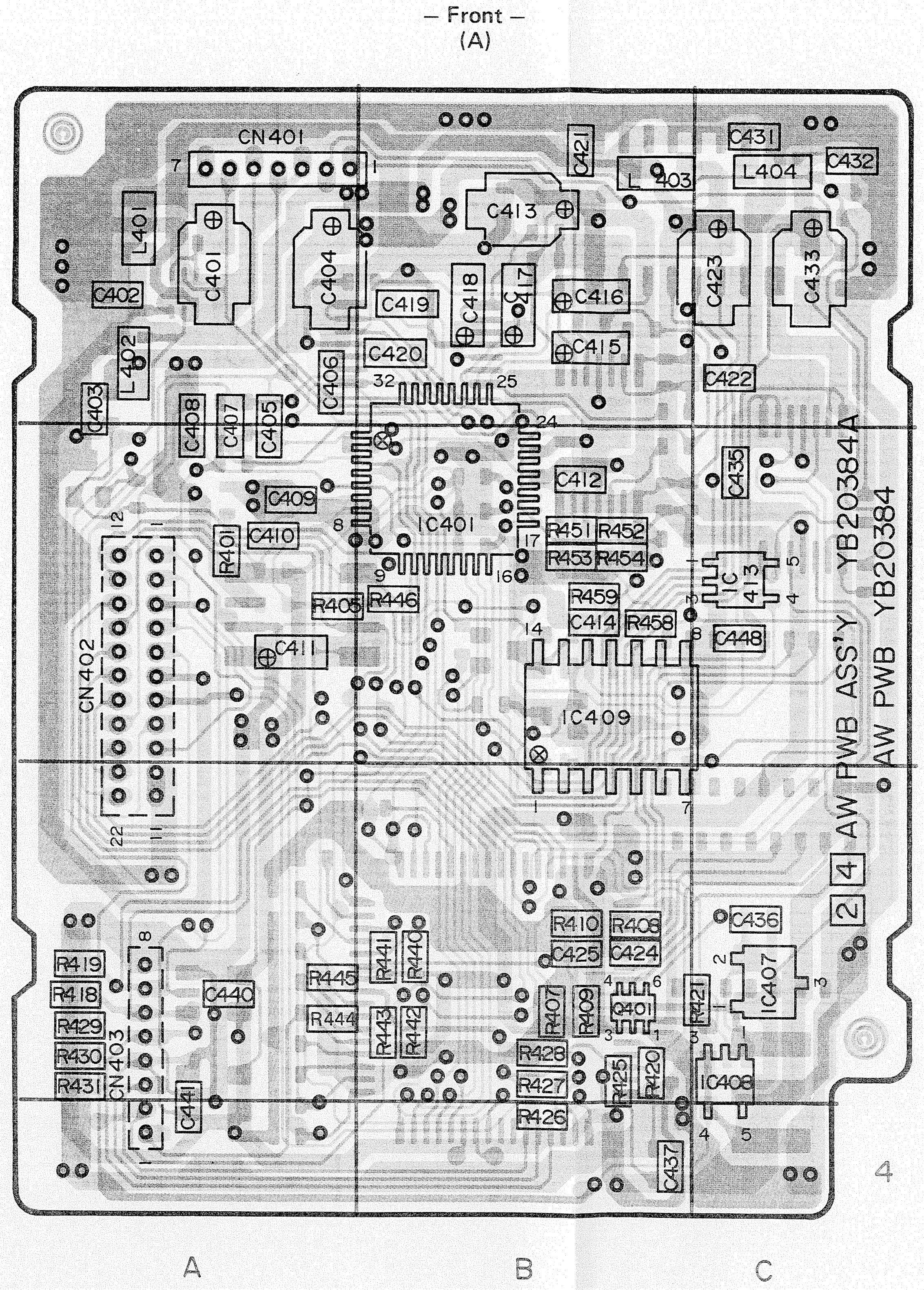
6
5
4
3
2
1
A
B
C
D
E
F
G
H
2 4 AUTO WHITE
IC404 LM324DB
IC403 MSM16811MS
Q402 XP5601
IC408 TC7S08F
Q401 XP5601
IC410 LM324DB
IC411 LM324DB
+5 V
From/To SENSOR UNIT
CN401
B OFFSET
R OFFSET
GND
B/G
G/R
G
+5V
L401 22
C401 10/16
TP401 GND
From/To 2 1 VIDEO,CN103
CN402
AW-1
DI
AF-DI
SK
AW-2
CS
AF-CLK
DO
G
PE
+5V
R CTL
VD
B CTL
ENC CP
YL
NC
Y COMP
GND
AW B-Y
GND
AW R-Y
IC402
MN18888JFFS
G
B/G
R/G
ADSH
GND
JIG ENABLE
JIG BUSY
SERIAL SW
MEMORY CS
EVR CS
EVR PE
MEMORY/EVR DC
MEMORY/EVR CLOCK
GND
R OFFSET-3
Y CORRECT
JIG DATA OUT
AF/JIG DATA IN
AF/JIG CLOCK
GAIN A
GAIN D
W DET
IC403
IC404
IC408
IC401
T2368FAP
Q403
2SA1532(BC)
IC413
TC7S32F
IC409
UPC319G2
IC412
TC4052BF
D401,D402
MA141K
RA401
RA402
IC405
IC406
IC405,IC406
TC4S66F
OSC401
IC407
RESET
IC407
MN12821(QR)
CN403
RESERVED
MODE SW
DO
DI
CK
ENABLE
BUSY
GND
NC

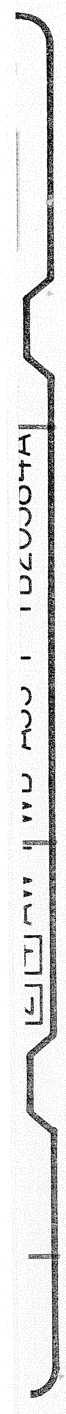
5.17 AUTO WHITE CIRCUIT BOARD

— Rear —
(B)

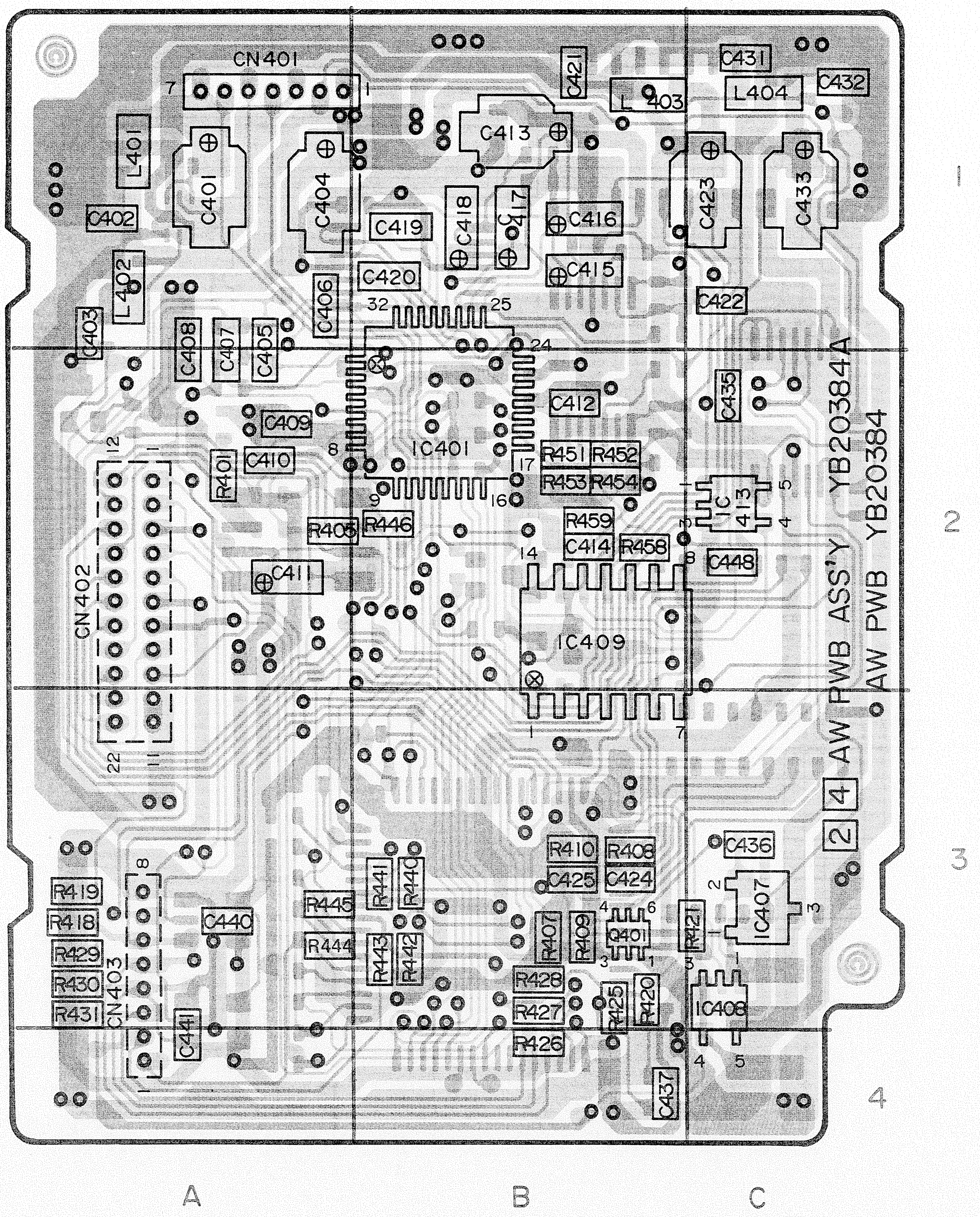

TP401
GND
CN401
IC412
IC410
IC411
IC404
IC403
IC402
IC405
IC406
RA402
RA401
OSC401
CN402
CN403
Q402
Q403
D401
D402
AW PWB
YB20384
AW PWB ASS'Y YB20384A
C
B
A

— Front —
(A)


CN401
CN402
CN403
IC401
IC407
IC408
IC409
IC413
Q401
L401
L402
L403
L404
C401
C404
C413
C423
C433
AW PWB ASS'Y YB20384A
AW PWB YB20384
A
B
C



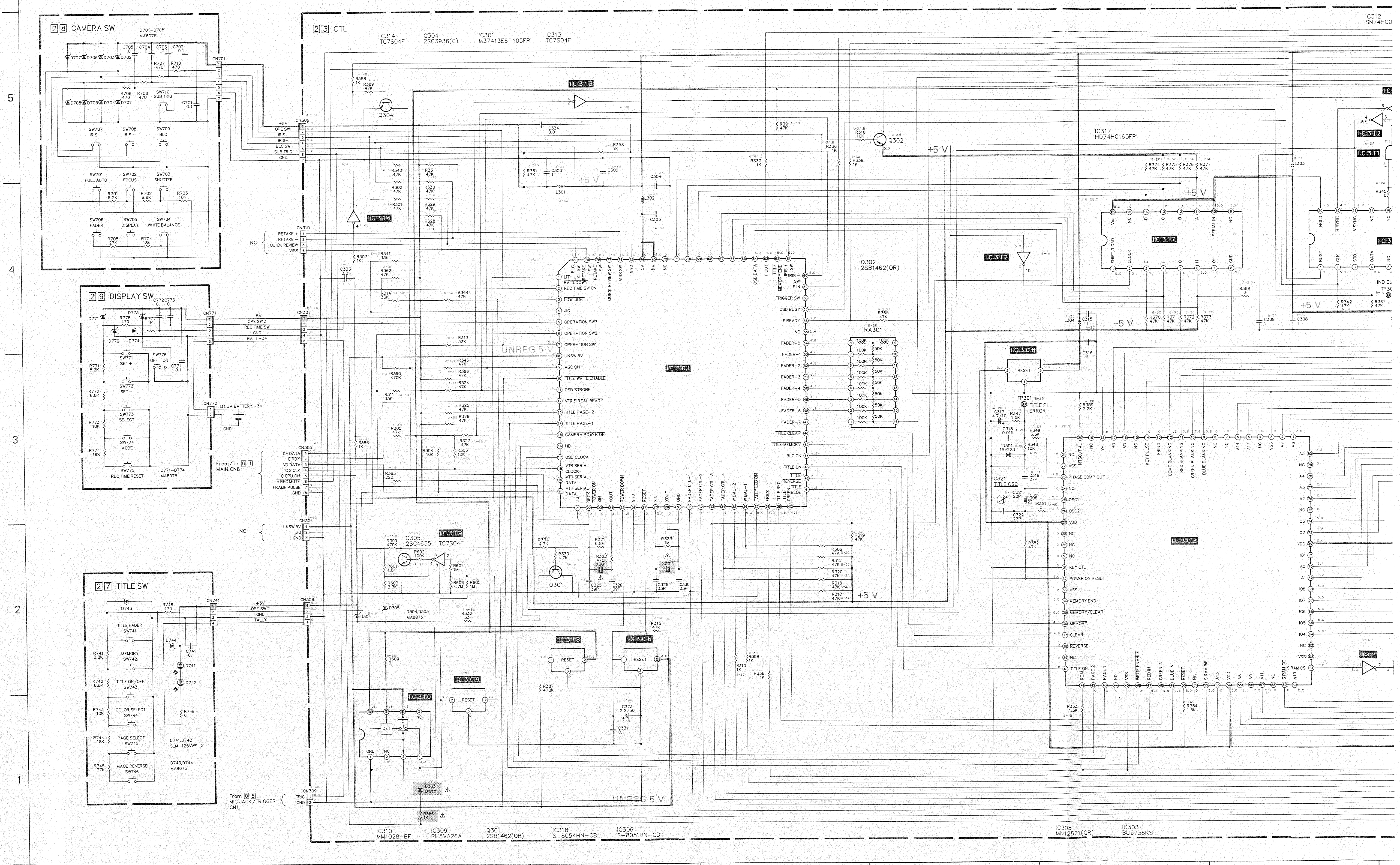
— Front —
(A)



CN401
CN402
CN403
IC401
IC409
IC413
IC407
IC408
Q401
L401
L402
L403
L404
C401
C402
C403
C404
C405
C406
C407
C408
C409
C410
C411
C412
C413
C414
C415
C416
C417
C418
C419
C420
C421
C422
C423
C424
C425
C431
C432
C433
C435
C436
C437
C440
C441
C448
R401
R405
R407
R408
R409
R410
R418
R419
R420
R421
R425
R426
R427
R428
R429
R430
R431
R441
R442
R443
R444
R445
R446
R451
R452
R453
R454
R458
R459
R440
AW PWB ASS'Y YB20384A
AW PWB YB20384
2
4
A
B
C
1
2
3
4

5.18 CTL, TITLE SW, CAMERA SW & DISPLAY SW SCHEMATIC DIAGRAM

● Voltage : Measured as the color bar pattern which lighted up brightly is shot in the rehersal mode.

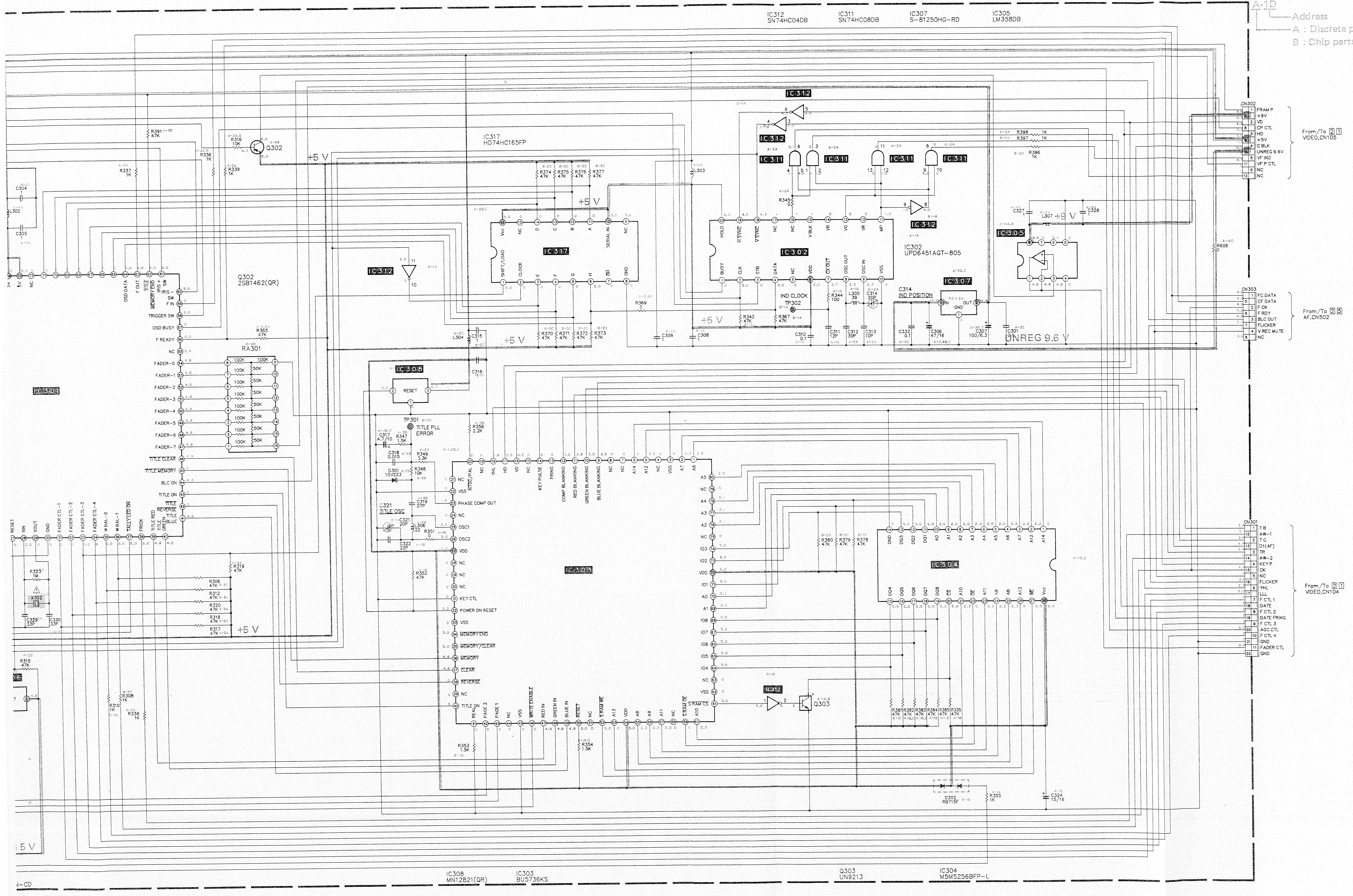


28 CAMERA SW
D701–D708 MA8075
SW707 IRIS –
SW708 IRIS +
SW709 BLC
SW710 SUB TRIG
SW701 FULL AUTO
SW702 FOCUS
SW703 SHUTTER
SW706 FADER
SW705 DISPLAY
SW704 WHITE BALANCE
CN701
29 DISPLAY SW
SW771 SET +
SW772 SET –
SW773 SELECT
SW774 MODE
SW775 REC TIME RESET
SW776 OFF ON
D771–D774 MA8075
CN771
CN772 LITIUM BATTERY +3V
27 TITLE SW
TITLE FADER SW741
MEMORY SW742
TITLE ON/OFF SW743
COLOR SELECT SW744
PAGE SELECT SW745
IMAGE REVERSE SW746
D741,D742 SLM-125VWS-X
D743,D744 MA8075
CN741
23 CTL
IC314 TC7S04F
Q304 2SC3936(C)
IC301 M37413E6-105FP
IC313 TC7S04F
IC312 SN74HC0
IC317 HD74HC165FP
Q302 2SB1462(QR)
CN306 +5V OPE SW1 IRIS+ IRIS– BLC SW SUB TRIG GND
CN310 RETAKE + RETAKE – QUICK REVIEW VSS
NC
CN307 +5V OPE SW 3 REC TIME SW GND BATT +3V
CN305 CV DATA C RDY VD DATA C S CLK C CPU ON V REC MUTE FRAME PULSE GND
From/To 01 MAIN,CN8
CN304 UNSW 5V JIG GND
CN308 +5V OPE SW 2 GND TALLY
CN309 TRIG GND
From 05 MIC JACK/TRIGGER CN1
LITHIUM BATT DOWN
REC TIME SW ON
LOW LIGHT
JIG
OPERATION SW3
OPERATION SW2
OPERATION SW1
UNSW 5V
AGC ON
TITLE WRITE ENABLE
OSD STROBE
VTR SIREAL READY
TITLE PAGE–2
TITLE PAGE–1
CAMERA POWER ON
HD
OSD CLOCK
VTR SERIAL CLOCK
VTR SERIAL DATA
VTR SERIAL DATA
IRIS + SW
F IN
TRIGGER SW
OSD BUSY
F READY
FADER–0
FADER–1
FADER–2
FADER–3
FADER–4
FADER–5
FADER–6
FADER–7
TITLE CLEAR
TITLE MEMORY
BLC ON
TITLE ON
TITLE REVERSE
TITLE BLUE
RA301
UNREG 5 V
+5 V
IC319 TC7S04F
Q305 2SC4655
D304,D305 MA8075
Q301
X301
X302
IC318
IC306
IC309
IC310
RESET
DET
D303 MA704
IC308 RESET
TP301 TITLE PLL ERROR
TITLE OSC
IC303
PHASE COMP OUT
OSC1
OSC2
VDD
KEY CTL
POWER ON RESET
VSS
MEMORY END
MEMORY/CLEAR
MEMORY
CLEAR
REVERSE
TITLE ON
SRAM CS
IND CL
IC310 MM1028-BF
IC309 RH5VA26A
Q301 2SB1462(QR)
IC318 S-8054HN-CB
IC306 S-8051HN-CD
IC308 MN12821(QR)
IC303 BU5736KS
6
5
4
3
2
1
A
B
C
D
E
F
G

● Voltage : Measured as the color bar pattern which lighted up brightly is shot in the rehersai mode.

● Shaded ( ) parts are critical for safety.
Replace only with specified part numbers.

● Address of chip parts
A-1D
Address
A : Discrete parts side
B : Chip parts side



IC312 SN74HC04DB
IC311 SN74HC08DB
IC307 S-81250HG-RD
IC305 LM358DB
IC317 HD74HC165FP
IC302 UPD6451AGT-805
IC303
IC304
IC308
IC301
Q302 2SB1462(QR)
Q303
CN302
CN303
CN301
From/To 21 VIDEO,CN105
From/To 25 AF,CN502
From/To 21 VIDEO,CN104
RA301
TP301 TITLE PLL ERROR
TP302 IND CLOCK
C314 IND POSITION
UNREG 9.6 V
+5 V
+9 V
D302 RB715F
D301 1SV223
X302
FRAM P
+9V
VD
CP CTL
HD
C BLK
UNREG 9.6V
VF IND
VF P CTL
NC
FC DATA
CF DATA
F CK
F RDY
BLC OUT
FLICKER
V REC MUTE
TB
AW-1
TG
D1(AF)
TR
AW-2
KEY P
CK
YHL
LLL
F CTL 1
DATE
F CTL 2
DATE FRING
F CTL 3
AGC CTL
F CTL 4
GND
FADER CTL
OSD DATA
F OUT
TRIGGER SW
OSD BUSY
F READY
FADER-0
FADER-1
FADER-2
FADER-3
FADER-4
FADER-5
FADER-6
FADER-7
TITLE CLEAR
TITLE MEMORY
BLC ON
TITLE ON
TITLE REVERSE
TITLE BLUE
KEY CTL
POWER ON RESET
MEMORYEND
MEMORY/CLEAR
MEMORY
CLEAR
REVERSE
PHASE COMP OUT
OSC1
OSC2
VDD
VSS
RESET
C321 TITLE OSC
S RAM CS
S RAM OE
WRITE ENABLE
RED IN
GREEN IN
BLUE IN
COMP BLANKING
RED BLANKING
GREEN BLANKING
BLUE BLANKING
KEY PULSE
FRING
NTSC/PAL

IC308
MN12821(QR)

IC303
BU5736KS

Q303
UN9213

IC304
M5M5256BFP-L

E F G

I J K

6

5.19 CONTROL, TITLE SW, CAMERA SW & DISPLAY SW CIRCUIT BOARD

5

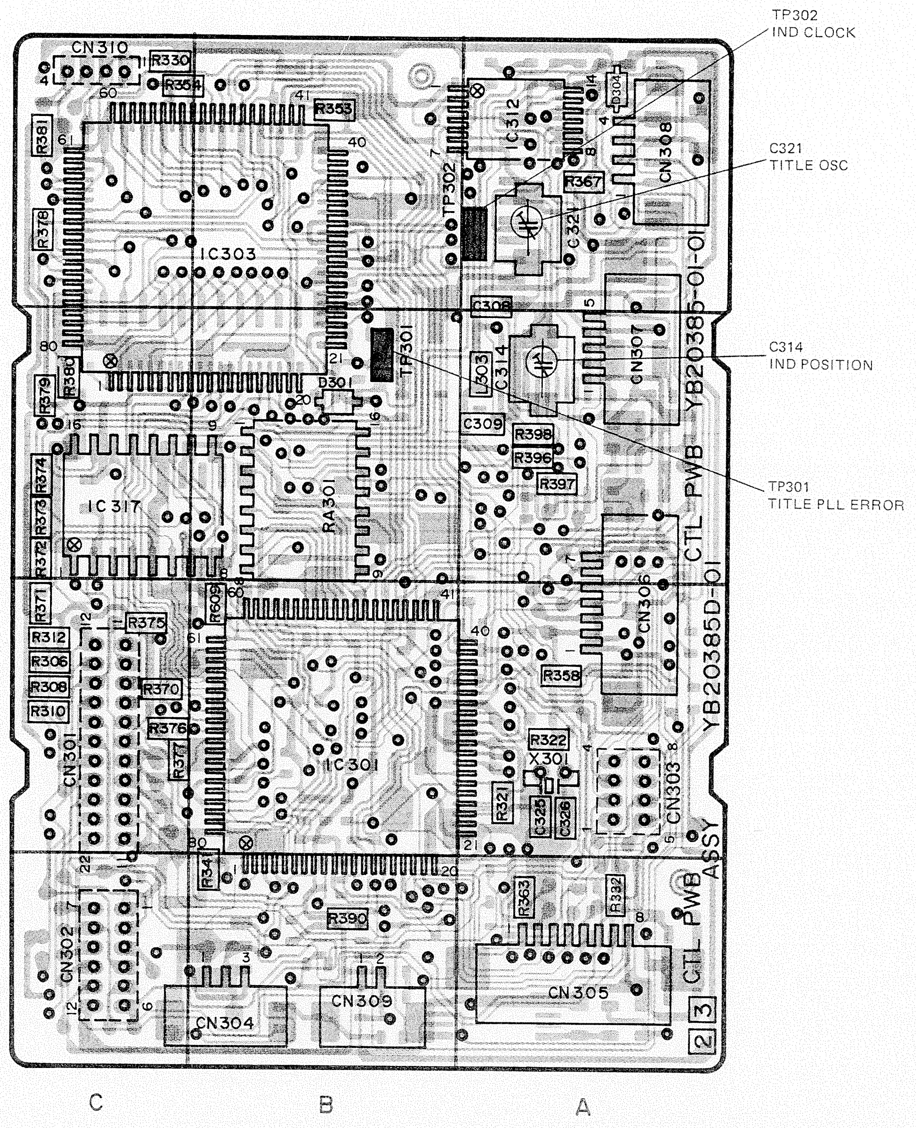
4

3

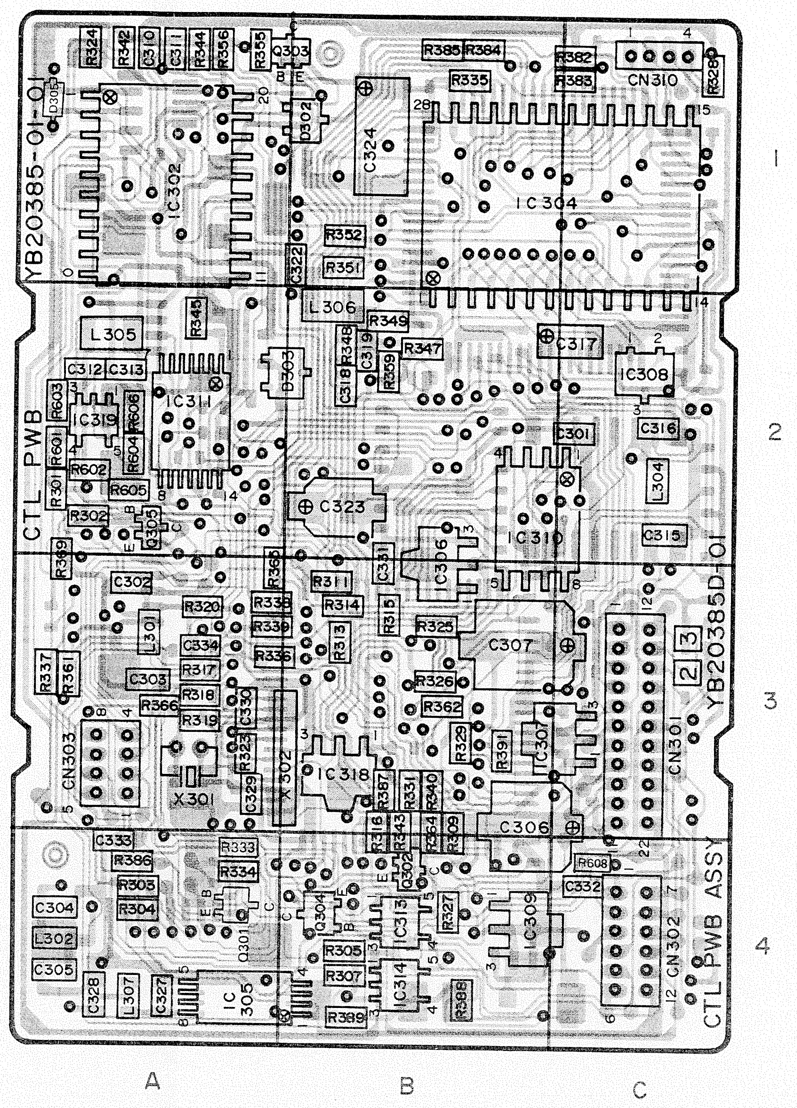
2

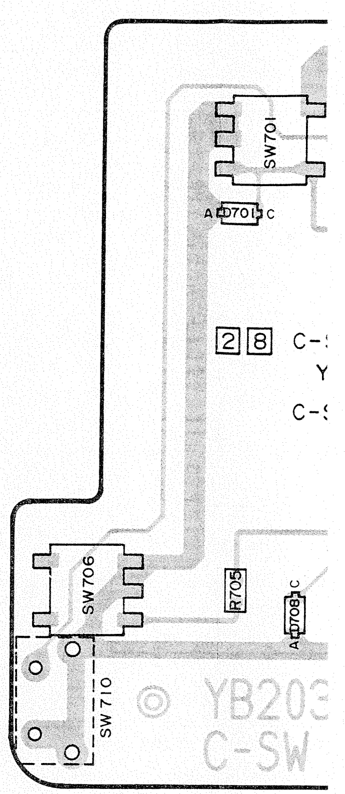
1

— Rear —
(B)

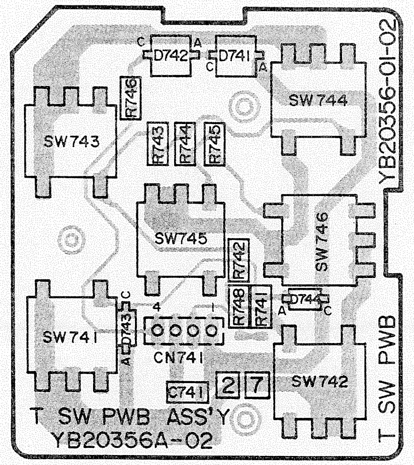

TP302
IND CLOCK
C321
TITLE OSC
C314
IND POSITION
TP301
TITLE PLL ERROR
CN310
IC303
IC312
CN308
CN307
IC317
RA301
IC301
CN306
CN301
CN303
CN302
CN304
CN309
CN305
X301
CTL PWB ASSY
YB20385D-01
YB20385-01-01
CTL PWB
1
2
3
4
C
B
A

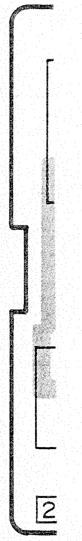
— Front —
(A)


CN310
IC302
IC304
IC308
IC311
IC319
IC310
IC306
IC318
IC313
IC314
IC309
IC305
CN301
CN302
CN303
X301
X302
L305
L306
C323
C324
C307
C306
YB20385-01-01
YB20385D-01
CTL PWB
CTL PWB ASSY
1
2
3
4
A
B
C


SW701
D701
SW706
R705
D708
SW710
YB203
C-SW

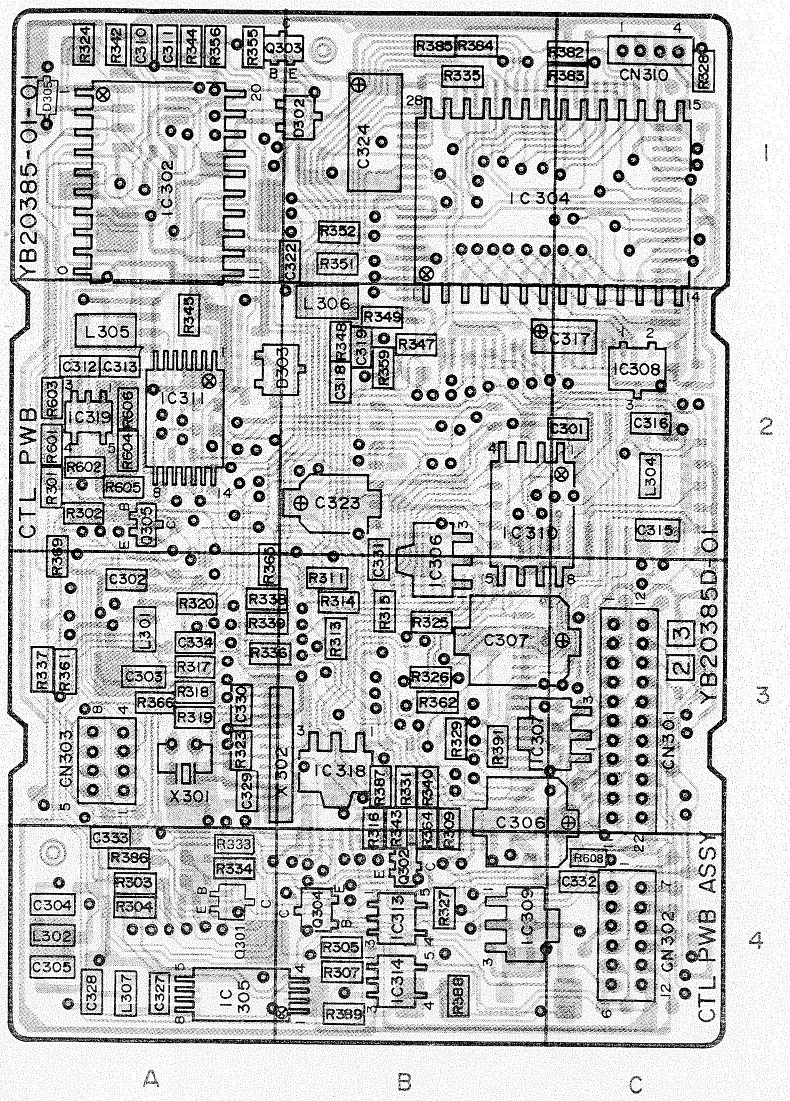
— TITLE SW —


D742
D741
SW744
SW743
R746
R743
R744
R745
SW745
SW746
R742
SW741
D743
CN741
R748
R741
D744
C741
SW742
T SW PWB ASS'Y
YB20356A-02
YB20356-01-02
T SW PWB

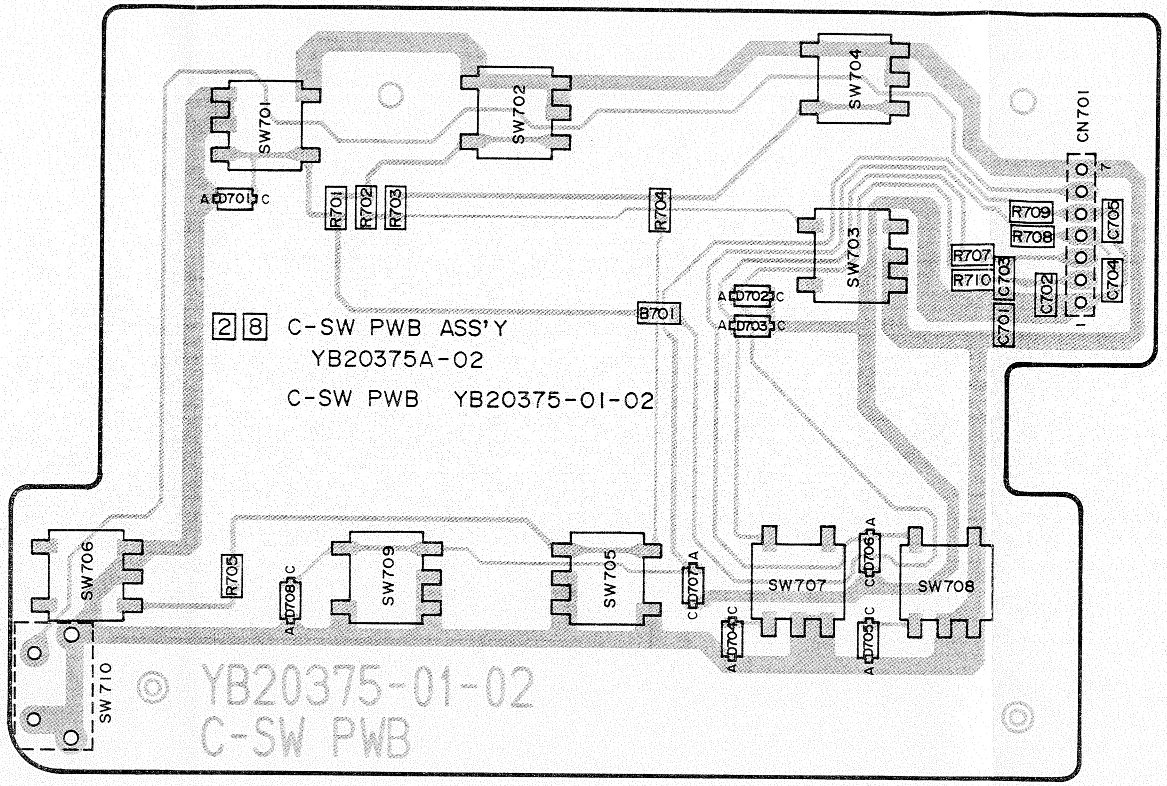


– Front –

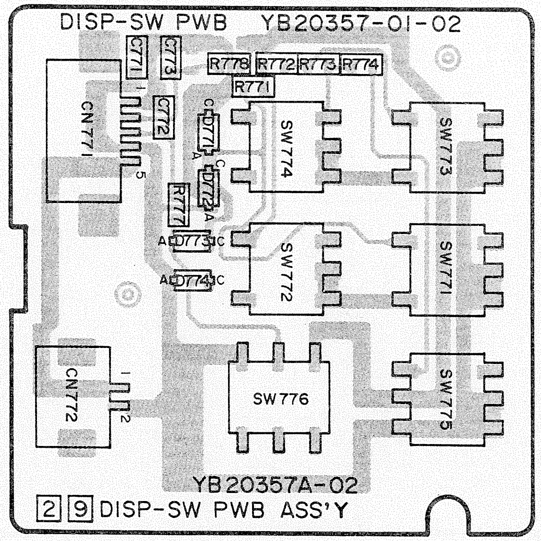
(A)


YB20385-01-01
CTL PWB
YB20385D-01
2 3
CTL PWB ASSY
IC302
IC304
IC311
IC319
IC310
IC308
IC306
IC318
IC307
IC309
IC313
IC314
IC305
CN310
CN303
CN301
CN302
X301
X302
L305
L306
L301
L302
L304
L307
C324
C307
C306
C323
1
2
3
4
A
B
C

– CAMERA SW –


2 8 C-SW PWB ASS'Y
YB20375A-02
C-SW PWB YB20375-01-02
YB20375-01-02
C-SW PWB
SW701
SW702
SW703
SW704
SW705
SW706
SW707
SW708
SW709
SW710
CN701
R701
R702
R703
R704
R705
R707
R708
R709
R710
B701
C701
C702
C703
C704
C705
D701
D702
D703
D704
D705
D706
D707
D708

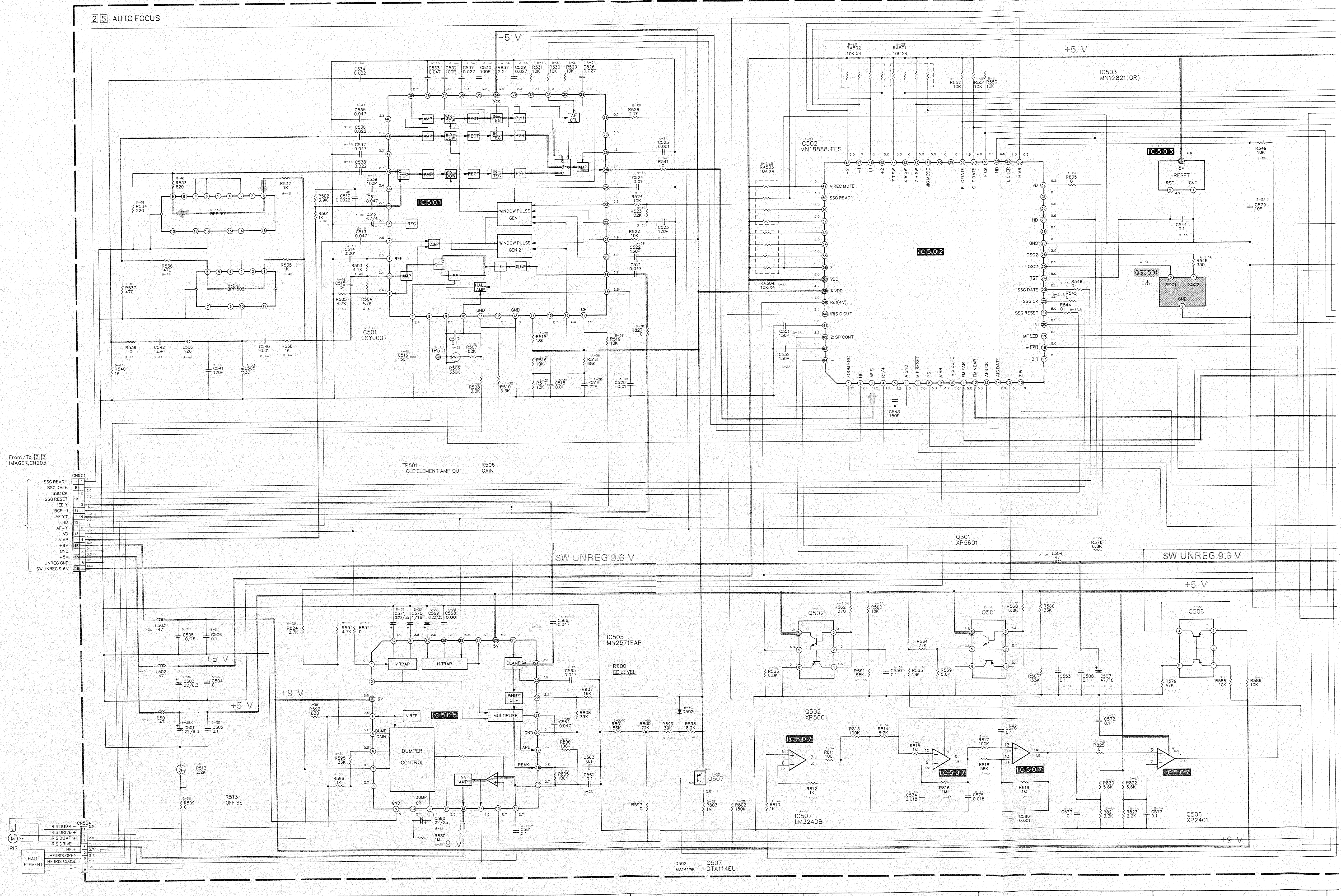
– DISPLAY SW –


DISP-SW PWB YB20357-01-02
YB20357A-02
2 9 DISP-SW PWB ASS'Y
CN771
CN772
SW771
SW772
SW773
SW774
SW775
SW776
R771
R772
R773
R774
R777
R778
C771
C772
C773
D771
D772
D773
D774

5.20 AUTO FOCUS SCHEMATIC DIAGRAM

● Shaded (▨) parts are critical for safety.
Replace only with specified part numbers.

⊕ Voltage : Measured as the color bar pattern which lighted up brightly is shot in the rehersal mode.



25 AUTO FOCUS
+5 V
IC501
JCY0007
IC502
MN18888JFES
IC503
MN12821(QR)
5V RESET
OSC501
IC505
MN2571FAP
IC507
LM324DB
Q501
XP5601
Q502
XP5601
Q506
XP2401
Q507
DTA114EU
D502
MA141WK
AMP
MIN DOW
RECT
INTEG
P/H
AF CTL
WINDOW PULSE GEN 1
WINDOW PULSE GEN 2
REG
COMP
LPF
HALL AMP
CLAMP
BPF 501
BPF 502
TP501
HOLE ELEMENT AMP OUT
R506
GAIN
R800
EE LEVEL
R513
OFF SET
V TRAP
H TRAP
WHITE CLIP
MULTIPLIER
V REF
DUMPER CONTROL
INV AMP
SW UNREG 9.6 V
+9 V
From/To 22
IMAGER,CN203
CN501
SSG READY
SSG DATE
SSG CK
SSG RESET
EE Y
BCP-1
AF YT
HD
AF-Y
VD
V AP
+9V
GND
+5V
UNREG GND
SW UNREG 9.6V
CN504
IRIS DUMP −
IRIS DRIVE +
IRIS DUMP +
IRIS DRIVE −
HE +
HE IRIS OPEN
HE IRIS CLOSE
HE −
IRIS
HALL ELEMENT
V REC MUTE
SSG READY
VDD
A VDD
Ref(4V)
IRIS C OUT
Z SP CONT
ZOOM ENC
FLICKER
F-C DATE
C-F DATE

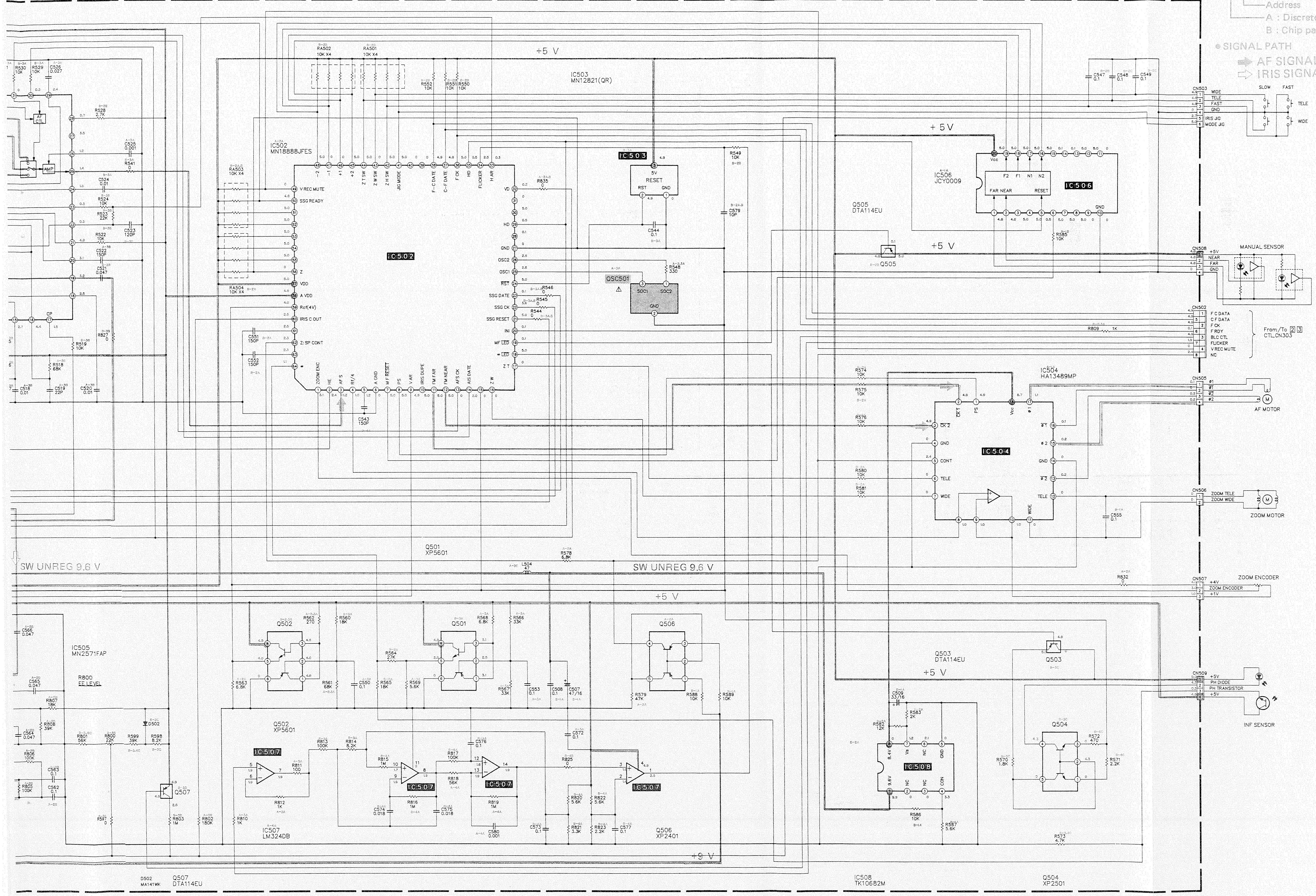
6
5
4
3
2
1
A
B
C
D
E
F
G

- Shaded (▒) parts are critical for safety.
  Replace only with specified part numbers.

- Voltage : Measured as the color bar pattern which lighted up brightly is shot in the rehersal mode.

- Address of chip parts
  A-1D
  Address
  A : Discrete parts side
  B : Chip parts side

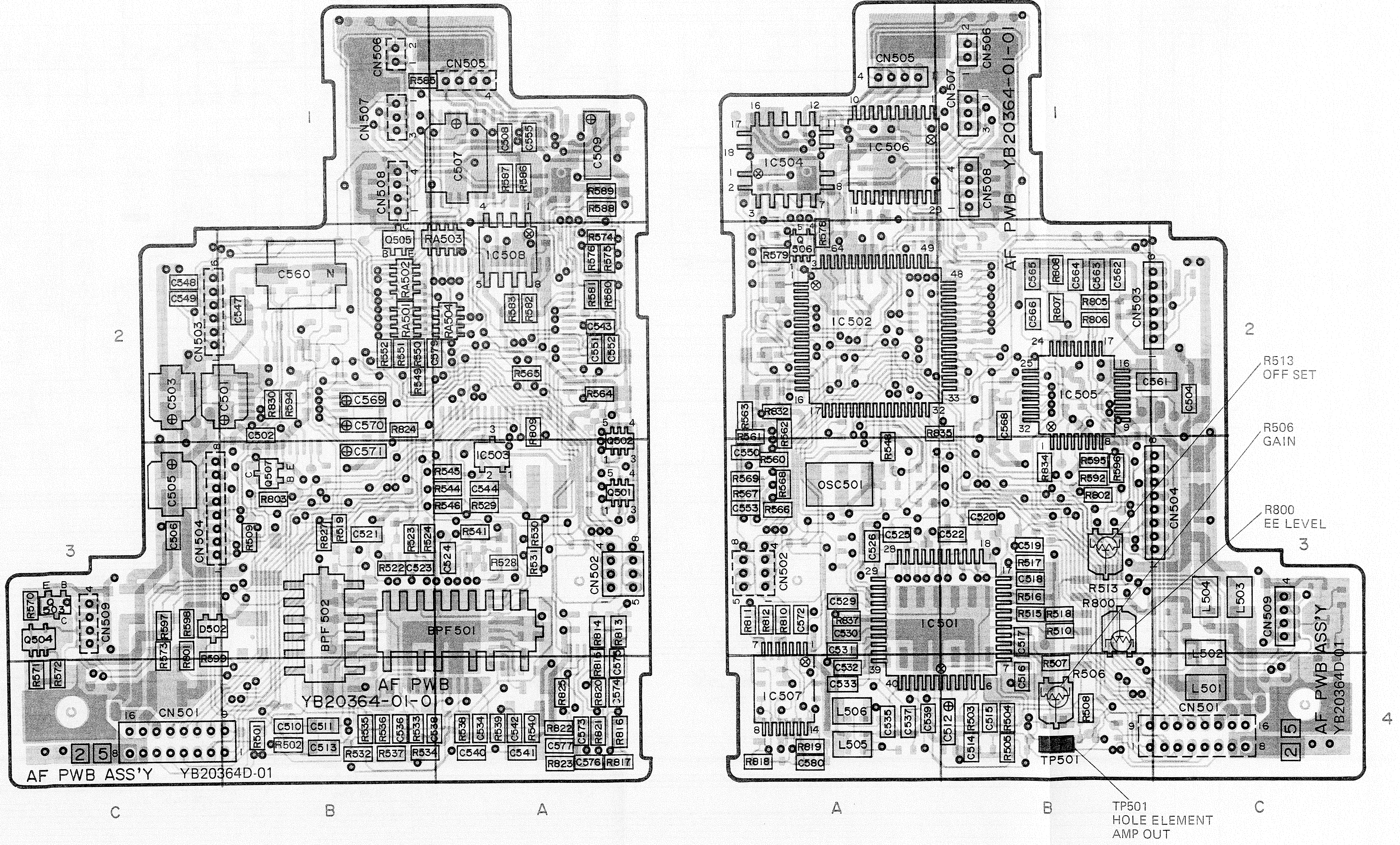
- SIGNAL PATH
  AF SIGNAL
  IRIS SIGNAL



IC502 MN18888JFES
IC503 MN12821(QR)
IC504 HA13489MP
IC505 MN2571FAP
IC506 JCY0009
IC507 LM324DB
IC508 TK10682M
Q501 XP5601
Q502 XP5601
Q503 DTA114EU
Q504 XP2501
Q505 DTA114EU
Q506 XP2401
Q507 DTA114EU
D502 MA141WK
OSC501
R800 EE LEVEL
+5 V
SW UNREG 9.6 V
+9 V
CN503 WIDE TELE FAST GND IRIS JIG MODE JIG
SLOW FAST TELE WIDE
CN508 +5V NEAR FAR GND
MANUAL SENSOR
CN502 F C DATA C F DATA F CK F RDY BLC CTL FLICKER V REC MUTE NC
From/To 2 3 CTL,CN303
CN505 ø1 ø1 ø2 ø2
AF MOTOR
CN506 ZOOM TELE ZOOM WIDE
ZOOM MOTOR
CN507 +4V ZOOM ENCODER +1V
ZOOM ENCODER
CN509 +5V PH DIODE PH TRANSISTOR +5V
INF SENSOR

E	F	G	5-51	5-52	I	J	K

5.21 AUTO FOCUS CIRCUIT BOARD

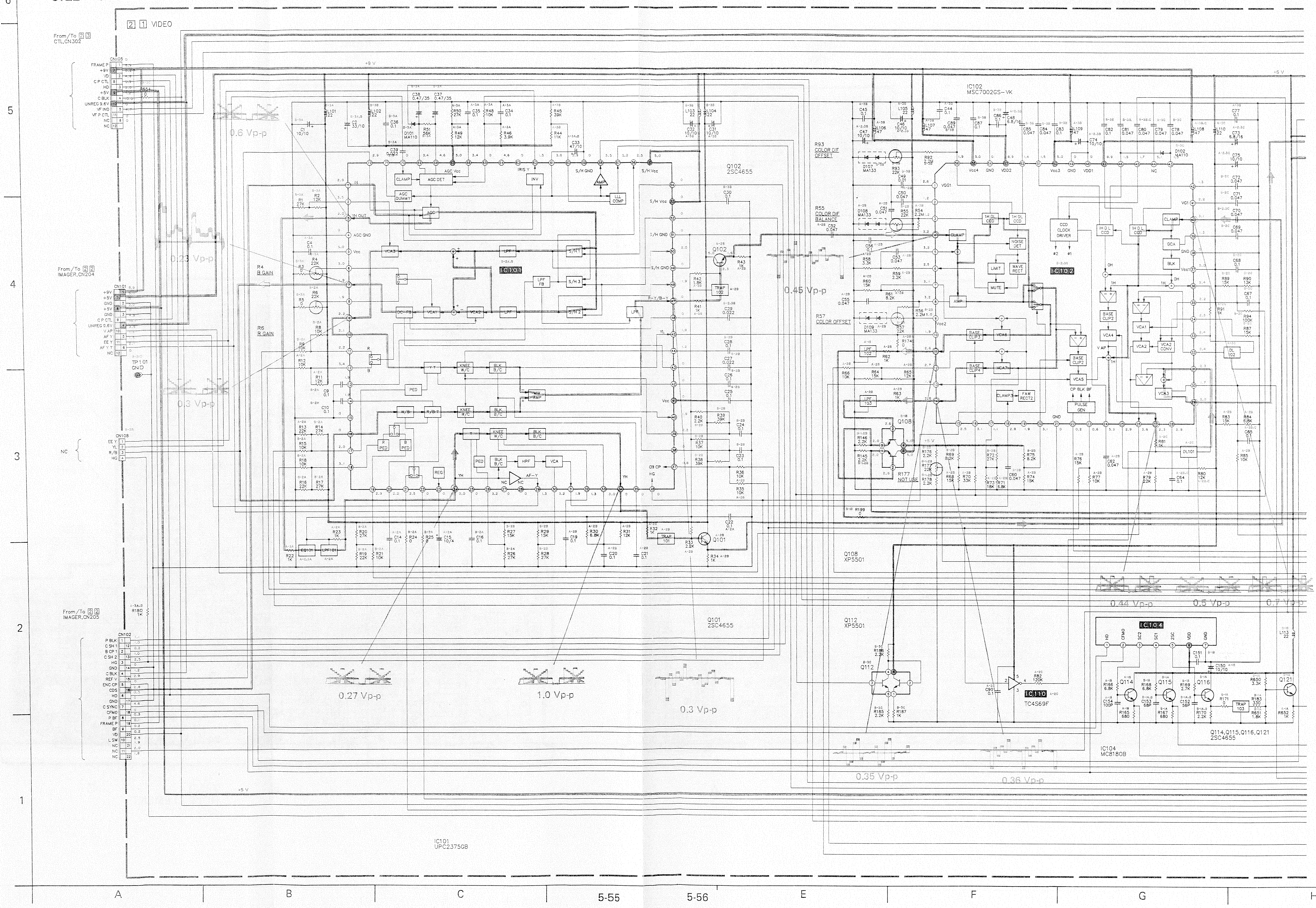


— Rear —
(B)

— Front —
(A)

CN506
CN505
CN507
CN508
C507
C509
IC508
Q505
RA503
RA502
RA501
RA504
C560
CN503
C503
C501
C505
CN504
C569
C570
C571
IC503
Q502
Q501
CN502
CN509
Q503
Q504
D502
BPF 502
BPF501
AF PWB
YB20364-01-0
CN501
AF PWB ASS'Y YB20364D-01
IC504
IC506
AF PWB YB20364-01-01
IC502
IC505
OSC501
IC501
IC507
L501
L502
L503
L504
L505
L506
R513
OFF SET
R506
GAIN
R800
EE LEVEL
TP501
HOLE ELEMENT
AMP OUT
AF PWB ASS'Y
YB20364D-01

5.22 VIDEO SCHEMATIC DIAGRAM


2 1 VIDEO
From/To 2 3 CTL,CN302
CN105
FRAME P
+9V
VD
C P CTL
HD
+5V
C BLK
UNREG 9.6V
VF IND
VF P CTL
NC
From/To 2 2 IMAGER,CN204
CN101
From/To 2 2 IMAGER,CN205
CN102
CN108
EE Y
YL
R/B
HG
NC
TP101 GND
R4 B GAIN
R6 R GAIN
IC101
IC101 UPC2375GB
IC102 MSC7002GS-VK
IC102
IC104
IC104 MC8180B
IC110
TC4S69F
Q101 2SC4655
Q102 2SC4655
Q108 XP5501
Q112 XP5501
Q114,Q115,Q116,Q121 2SC4655
R93 COLOR D/F OFFSET
R55 COLOR D/F BALANCE
R57 COLOR OFFSET
R177 NOT USE
D101 MA110
D102 MA110
D107 MA133
D108 MA133
D109 MA133
AGC DET
AGC DUMMY
AGC
CLAMP
INV
AMP
LLL COMP
S/H GND
S/H Vcc
VCA3
VCA1
VCA2
LPF
S/H 1
S/H 2
S/H 3
LPF FB
DC FB
Y.T
KNEE W/C
BLK B/C
MIX AMP
PED
W/B
R/B/T
HPF
VCA
REG
AF-Y
TRAP 101
TRAP 102
TRAP 103
EQ101
LPF101
CCD CLOCK DRIVER
NOISE DET
WAVE RECT
LIMIT
MUTE
BASE CLIP3
BASE CLIP4
BASE CLIP2
VCA6
VCA7
VCA5
VCA4
CLAMP3
FAW RECT2
PULSE GEN
1H DL CCD
GCA
BLK
DL 102
DL101
0.6 Vp-p
0.23 Vp-p
0.3 Vp-p
0.45 Vp-p
0.27 Vp-p
1.0 Vp-p
0.3 Vp-p
0.35 Vp-p
0.36 Vp-p
0.44 Vp-p
0.5 Vp-p
0.7 Vp-p
+9 V
+5 V
A
B
C
E
F
G
H
1
2
3
4
5
6

● Voltage : Measured as the color bar pattern which lighted up brightly is shot in the rehersal mode.

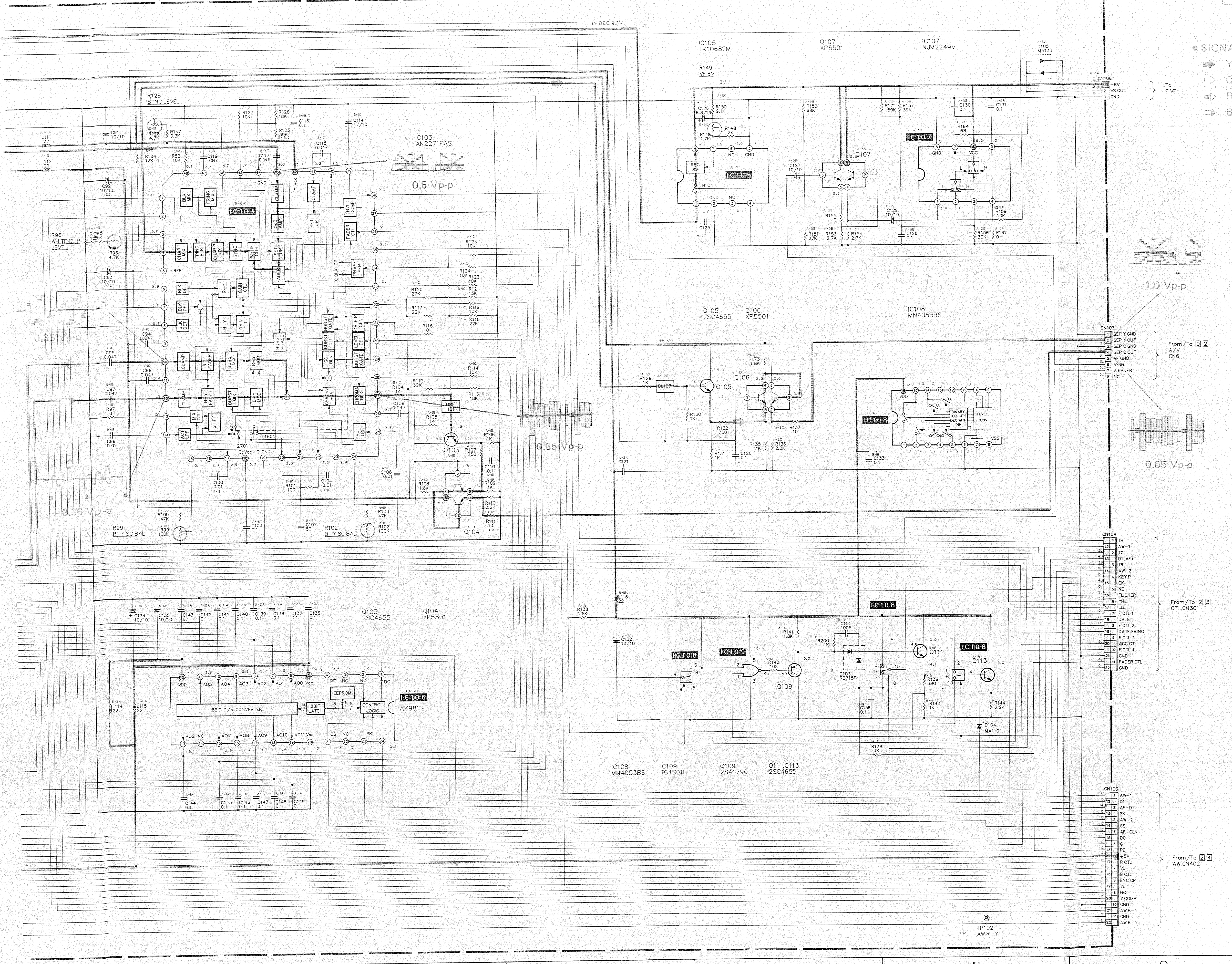
● Waveform : Measured as the gray scale or color bar pattern which light up brightly is shot in the rehersal mode.

● Address of chip parts

A-1D
Address
A : Discrete parts side
B : Chip parts side

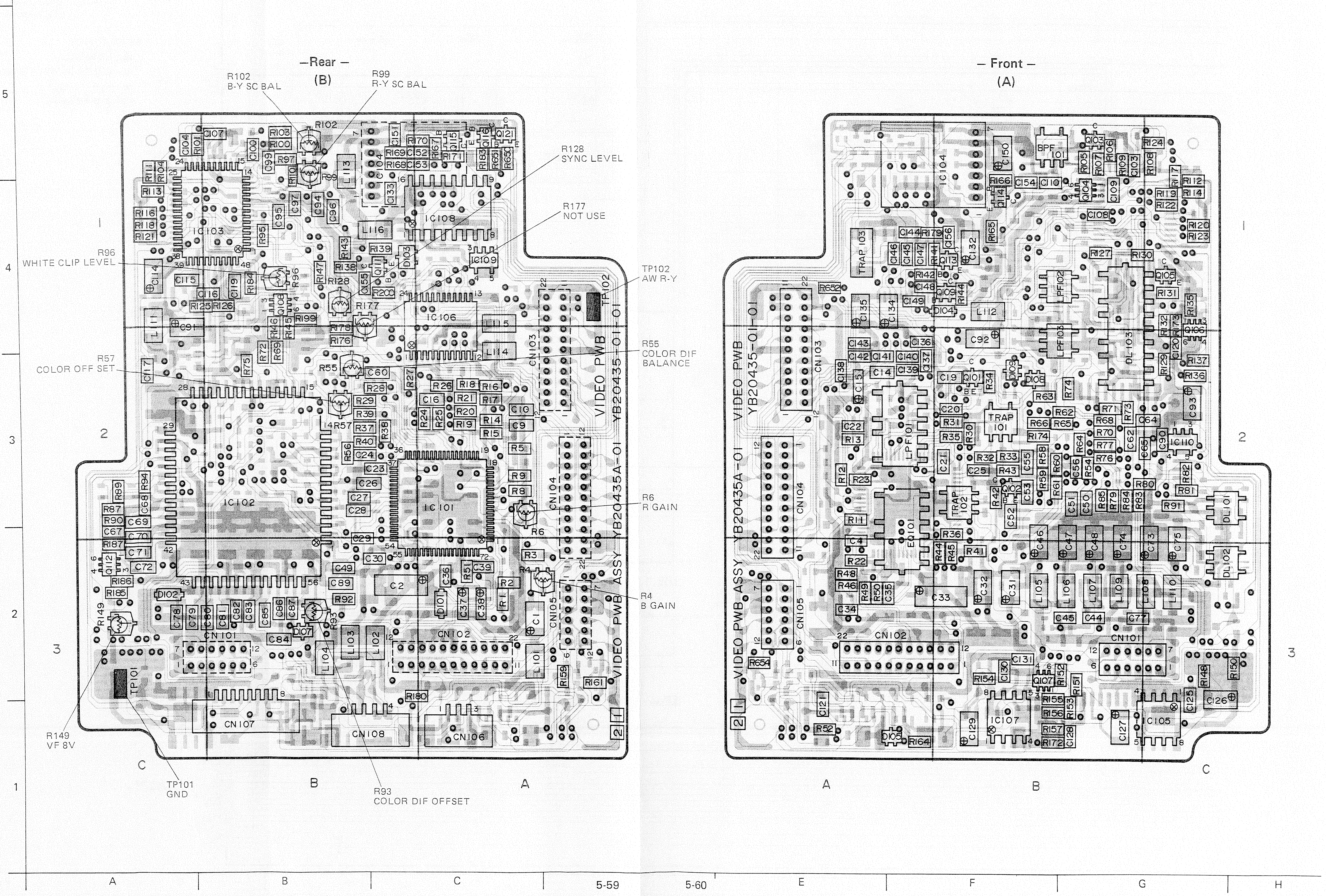
● SIGNAL PATH

⇨ Y SIGNAL
⇨ COLOR (R-Y/B-Y) SIGNAL
⇨ R, R-Y SIGNAL
⇨ B, B-Y SIGNAL



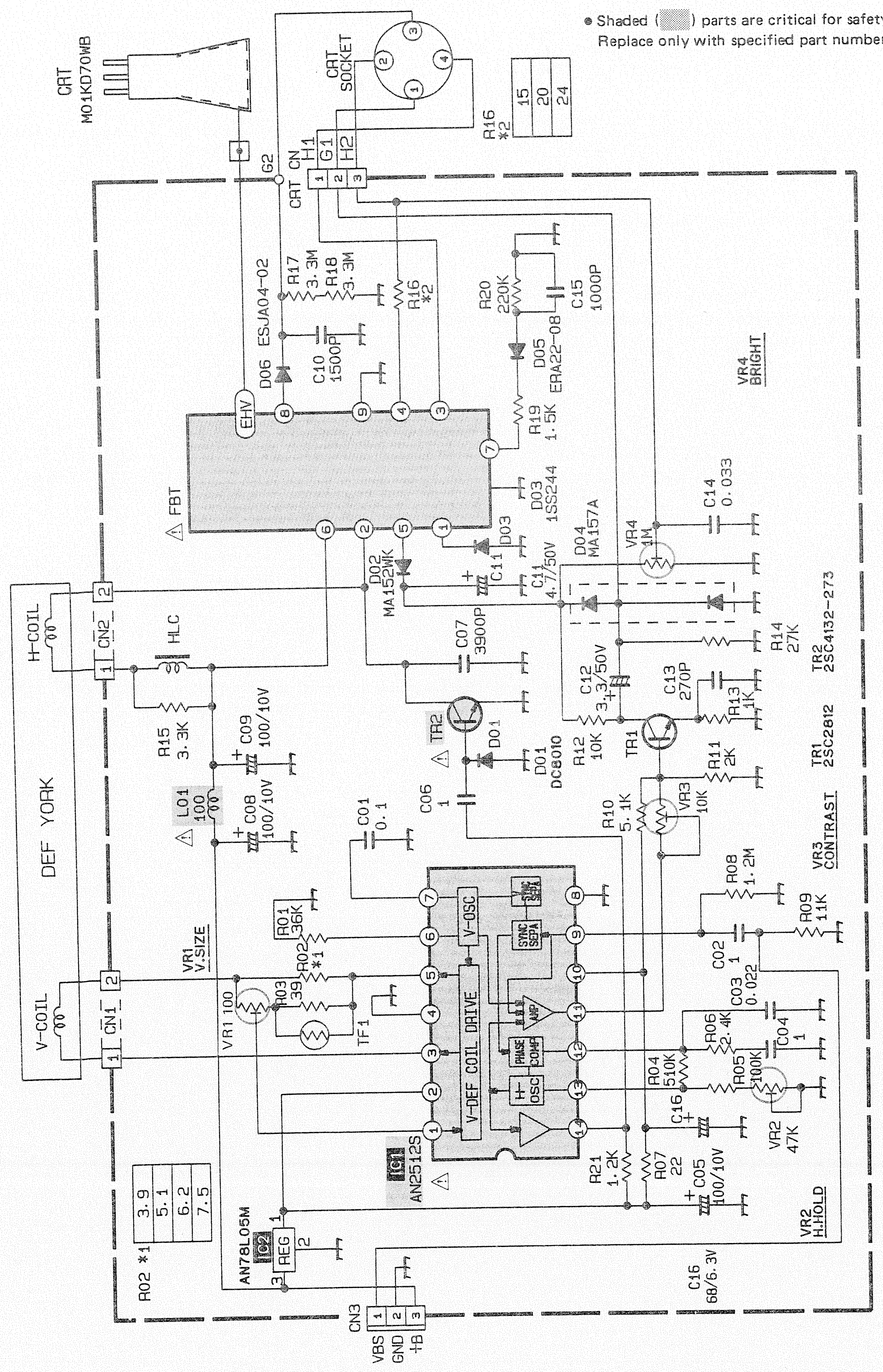
IC103 AN2271FAS
IC105 TK10682M
Q107 XP5501
IC107 NJM2249M
D105 MA133
CN106
+8V
VS OUT
GND
To E.VF
R128 SYNC LEVEL
R96 WHITE CLIP LEVEL
0.5 Vp-p
0.35 Vp-p
0.36 Vp-p
0.65 Vp-p
1.0 Vp-p
Q105 2SC4655
Q106 XP5501
IC108 MN4053BS
CN107
SEP Y GND
SEP Y OUT
SEP C GND
SEP C OUT
VF GND
VP IN
A FADER
NC
From/To 02 A/V CN6
R99 R-Y SC BAL
R102 B-Y SC BAL
Q103
Q104
CN104
From/To 23 CTL,CN301
Q103 2SC4655
Q104 XP5501
IC106 AK9812
8BIT D/A CONVERTER
8BIT LATCH
EEPROM
CONTROL LOGIC
IC109
Q109
Q111
Q113
D103 RB715F
D104 MA110
IC108 MN4053BS
IC109 TC4S01F
Q109 2SA1790
Q111,Q113 2SC4655
CN103
From/To 24 AW,CN402
TP102 AW R-Y
UN REG 9.5V
+5V

5.23 VIDEO CIRCUIT BOARD


– Rear –
(B)
R102
B-Y SC BAL
R99
R-Y SC BAL
R128
SYNC LEVEL
R177
NOT USE
TP102
AW R-Y
R96
WHITE CLIP LEVEL
R55
COLOR DIF
BALANCE
R57
COLOR OFF SET
R6
R GAIN
R4
B GAIN
R149
VF 8V
TP101
GND
R93
COLOR DIF OFFSET
VIDEO PWB ASSY YB20435A-01
VIDEO PWB YB20435-01-01
– Front –
(A)
VIDEO PWB ASSY YB20435A-01
VIDEO PWB YB20435-01-01
1
2
3
4
5
6
A
B
C
D
E
F
G
H

5.24 E. VF SCHEMATIC DIAGRAM

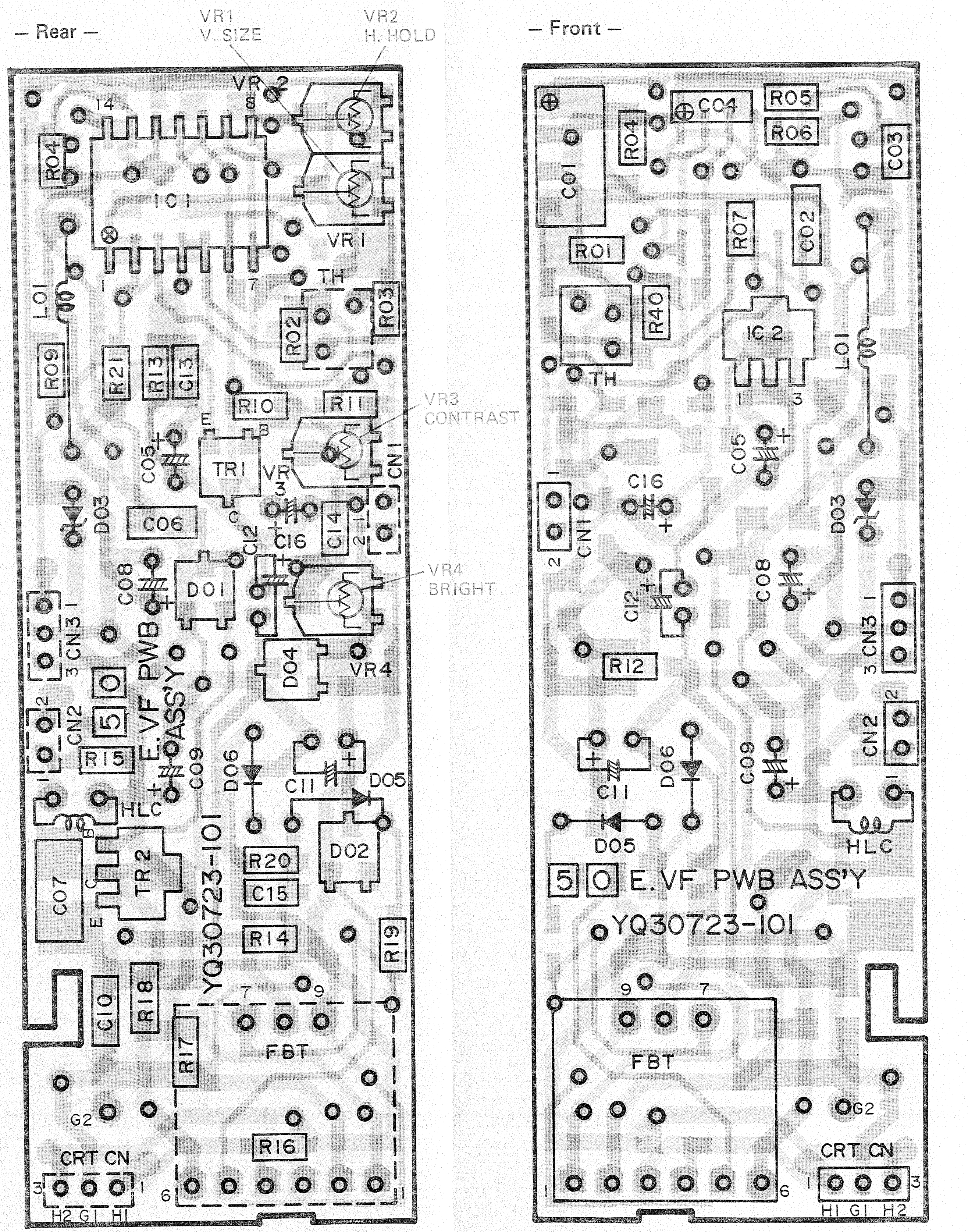
● Shaded (▨) parts are critical for safety.
Replace only with specified part numbers.


CRT M01KD70WB
CRT SOCKET
R16 *2
15
20
24
CRT CN
G1
H1
H2
G2
R17 3.3M
R18 3.3M
R16 *2
D06 ESJA04-02
C10 1500P
R20 220K
C15 1000P
D05 ERA22-08
R19 1.5K
EHV
FBT
D03 1SS244
C14 0.033
D04 MA157A
VR4 1M
VR4 BRIGHT
D02 MA152WK
C11 4.7/50V
C07 3900P
C12 3.3/50V
C13 270P
R13 1K
R14 27K
TR2 2SC4132-273
TR1 2SC2812
H-COIL
CN2
HLC
R15 3.3K
C09 100/10V
TR2
D01 DC8010
R12 10K
TR1
R11 2K
DEF YORK
L01 100
C08 100/10V
C01 0.1
C06 1
R10 5.1K
VR3 10K
VR3 CONTRAST
R08 1.2M
R09 11K
R01 36K
R02 *1
R03 39
VR1 V.SIZE
VR1 100
TF1
V-OSC
SYNC SEPA
AMP
PHASE COMP
H-OSC
V-DEF COIL DRIVE
C02 1
C03 0.022
R06 2.4K
C04 1
R04 510K
R05 100K
VR2 47K
VR2 H.HOLD
C16
R21 1.2K
R07 22
C05 100/10V
IC1 AN2512S
V-COIL
CN1
R02 *1
3.9
5.1
6.2
7.5
AN78L05M IC2 REG
CN3
VBS
GND
+B
C16 68/6.3V

5.25 E. VF CIRCUIT BOARD

– Rear –

– Front –


VR1 V. SIZE
VR2 H. HOLD
VR3 CONTRAST
VR4 BRIGHT
IC1
IC2
TH
R01
R02
R03
R04
R05
R06
R07
R09
R10
R11
R12
R13
R14
R15
R16
R17
R18
R19
R20
R21
R40
C01
C02
C03
C04
C05
C06
C07
C08
C09
C10
C11
C12
C13
C14
C15
C16
D01
D02
D03
D04
D05
D06
TR1
TR2
L01
HLC
CN1
CN2
CN3
FBT
G2
CRT CN
H2 G1 H1
H1 G1 H2
E.VF PWB ASS'Y
YQ30723-101

SECTION 6
EXPLODED VIEWS AND PARTS LIST

SAFETY PRECAUTION

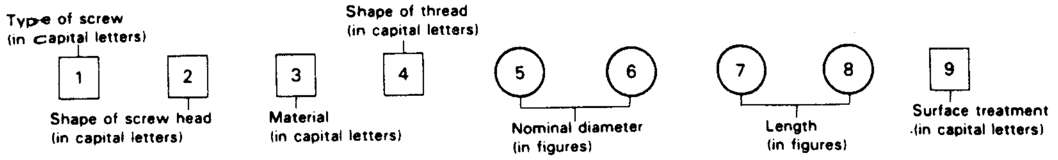
Parts identified by the ⚠ symbol are critical for safety. Replace only with specified part numbers.

NOTE: [M] indicates mechanical symbol number.

6.1 STANDARD PART NUMBER CODING

6.1.1 Screw coding

Standard screw part numbers are as follows.

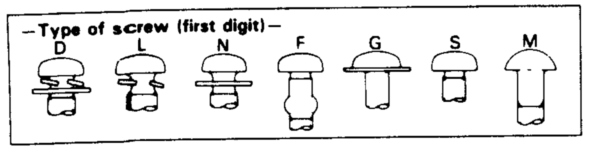

Type of screw (in capital letters)
Shape of thread (in capital letters)
1
2
3
4
5
6
7
8
9
Shape of screw head (in capital letters)
Material (in capital letters)
Nominal diameter (in figures)
Length (in figures)
Surface treatment (in capital letters)

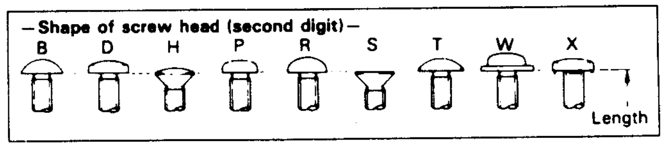
Type of screw (first digit)

S	Normal screws
D	Assembled machine screws (with plain and spring washers)
L	〃 (with spring washer)
N	〃 (with plain washer)
F	Feather screws
G	Washer head tapping screws
M	Wood screws

Shape of screw head (second digit)

B	Brazier head
D	Binding head
H	Oval countersunk head
P	Pan head
R	Round head
S	Flat head
T	Truss head
W	Washer head (machine screws)
X	Toothed head


–Type of screw (first digit)–
D
L
N
F
G
S
M

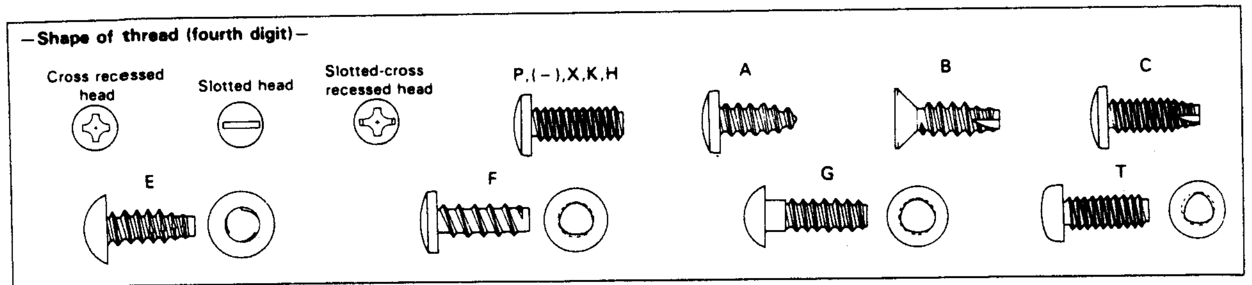

–Shape of screw head (second digit)–
B
D
H
P
R
S
T
W
X
Length

Material (third digit)

S	Steel
E	Stainless steel
C	Cast iron
U	Copper
B	Brass
P	Phosphor bronze
N	Nickel silver
Y	Cast brass
A	Aluminum
Z	Zinc alloy
K	Polycarbonate

Shape of thread (fourth digit)

P	Cross recessed head screws
(–)	Slotted head machine screws
X	Slotted-cross recessed head machine screws
K	Cross recessed head machine screws for precision equipment (type 1)
H	〃 (type 3)
A	Cross recessed head tapping screws (type 1)
B	〃 (type 2)
C	〃 (type 3)
E	Cross recessed head special tapping screws (brand : evertight)
F	〃 (brand : P-tight)
T	〃 (brand : taptight)
G	〃


–Shape of thread (fourth digit)–
Cross recessed head
Slotted head
Slotted-cross recessed head
P,(–),X,K,H
A
B
C
E
F
G
T

Nominal diameter (fifth and sixth digits)

The fifth and sixth digits indicate a nominal diameter or dimension. If the dimension exceeds 10 mm, three digits are used. The number indicates a nominal diameter or dimension, given in millimeters, multiplied by ten.

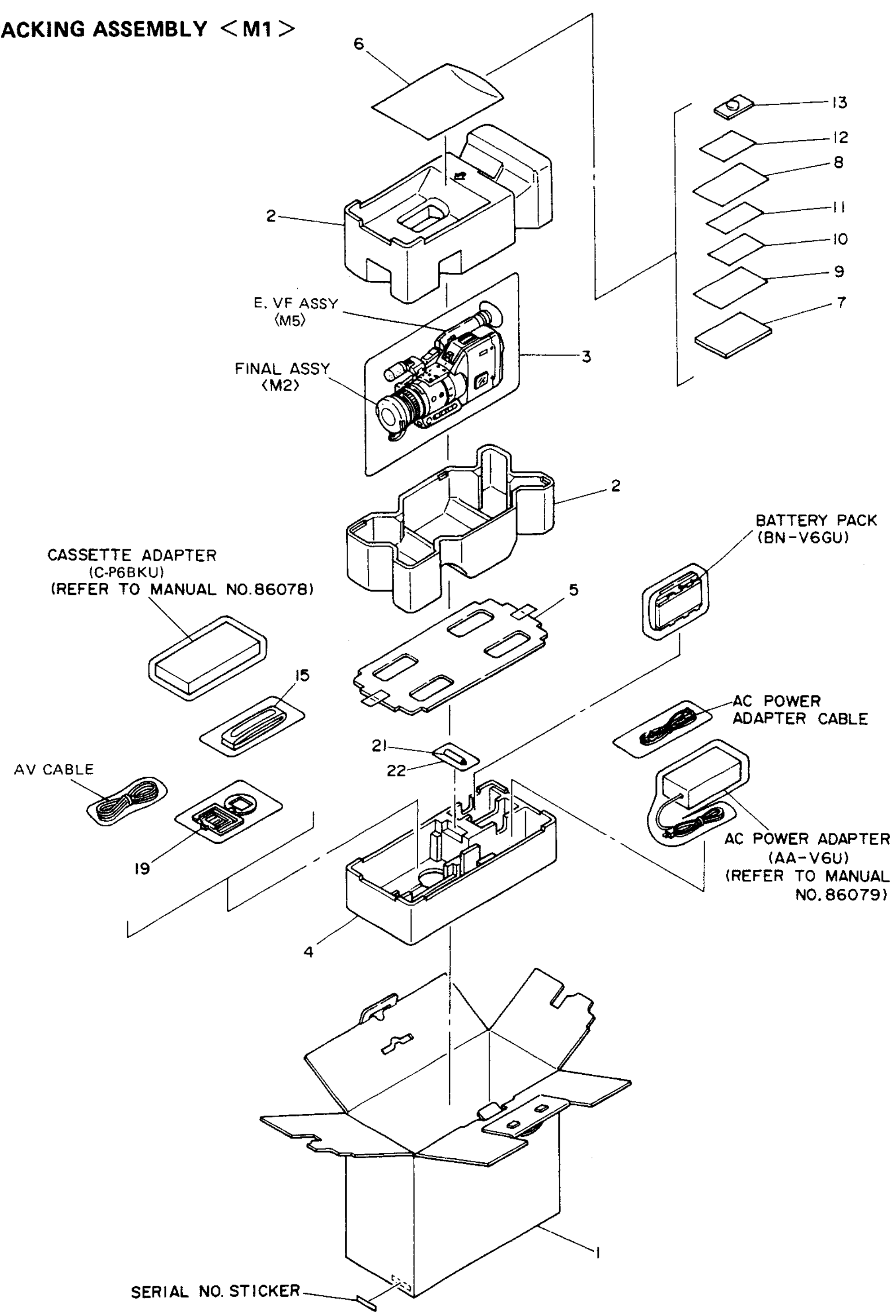
Length (seventh and eighth digits)

The seventh and eighth digits indicate length in millimeters. The preceding figure is zero when the dimension is smaller than 10 mm. For machine screws used in precision equipment whose length is given in units of 0.1 mm, the number indicates ten times the size of their length.

Surface treatment (ninth digit)

Z	Dichromate treatment after galvanizing (MFZn II-C)
N	Nickel plating (MFNiII, MFNiI)
R	Chromium plating (MBCrII, MBCrI)
G	Silver plating (SP4)
B	Black coating after plating
F	Blackening of iron (FB)
M	Blackening after galvanizing
K	Pickling of brass (PF2)
P	Phosphate treatment
W	Uni-chrome plating
L	Coated with transparent paint
A	Colored red after galvanizing (MFZnII-C)
C	Colored blue after galvanizing (MFZzII-C)
T	Colored green after galvanizing (MFZnII-C)
V	Colored purple after galvanizing (MFZnII-C)

6.2 PACKING ASSEMBLY <M1>


6
13
12
8
11
10
9
7
2
E. VF ASSY (M5)
FINAL ASSY (M2)
3
2
BATTERY PACK (BN-V6GU)
CASSETTE ADAPTER (C-P6BKU) (REFER TO MANUAL NO.86078)
5
15
AC POWER ADAPTER CABLE
21
22
AV CABLE
19
AC POWER ADAPTER (AA-V6U) (REFER TO MANUAL NO.86079)
4
1
SERIAL NO. STICKER

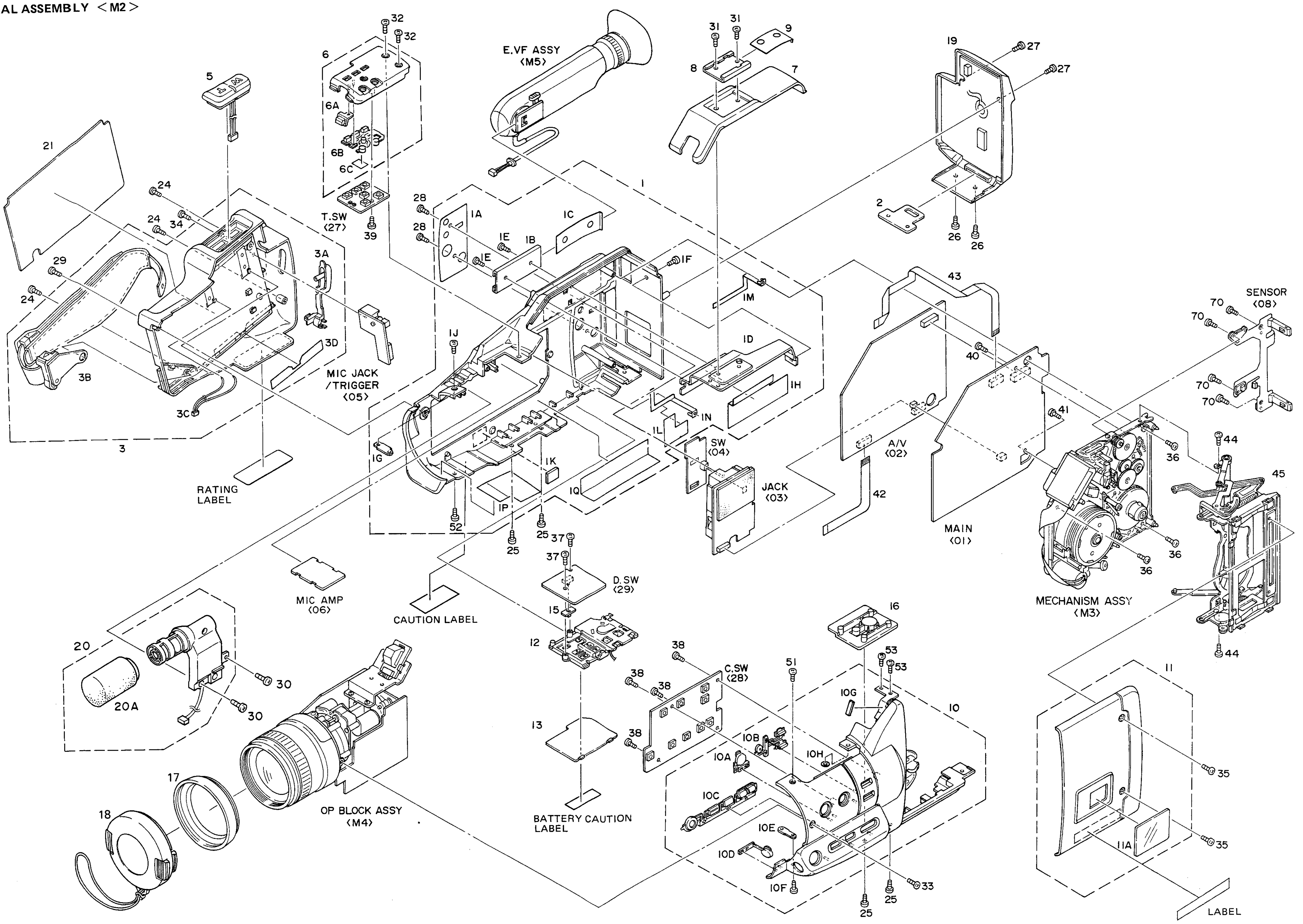
#⚠	REF No.	PART No.	PART NAME, DESCRIPTION

****

PACKING ASSEMBLY <M1>

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	1	YQ30820-2-2	PACKING CASE,FOR CANADA
	1	YQ30820-14	PACKING CASE,FOR USA
	2	YQ30760A-1	CUSHION ASSY
	3	YQM30021-10	POLY BAG
	4	YQ20421	ACC TRAY
	5	YQ30819	ACC TRAY SHEET
	6	QPGA025-03505	POLY BAG
⚠	7	YU30052-186	INSTRUCTIONS,FOR CANADA
⚠	7	YU30052-185	INSTRUCTIONS,FOR USA
	8	YU30217-8	TITLE CARD
⚠	9	PU33941-3-3	SAFETY CAUTION
	10	TCU-3492	TAPE CATALOG
	11	BT-20071A	INSTRUCTION GUIDE,FOR CANADA
	12	BT-20025K	WARRANTY CARD,FOR CANADA
	12	BT-20062B	WARRANTY CARD,FOR USA
⚠	13	YU40547	BATTERY
	15	YQ10188A-1	SHOULDER STRAP ASSY
	19	YQ30785A-1	TITLE HOLDER
	21	UM-3DJ	BATTERY
	22	QPGA005-01005	POLY BAG

6.3 FINAL ASSEMBLY <M2>


32
32
6
6A
6B
6C
T.SW
<27>
39
5
21
24
24
34
24
29
24
3B
3C
3
3A
3D
MIC JACK
/TRIGGER
<05>
RATING
LABEL
E.VF ASSY
<M5>
28
28
IA
IE
IE
IB
IC
I
IF
IJ
IG
IK
IP
IQ
52
25
25
IM
ID
IH
IN
IL
SW
<04>
JACK
<03>
31
31
9
8
7
19
27
27
2
26
26
43
40
41
A/V
<02>
42
MAIN
<01>
SENSOR
<08>
70
70
70
70
36
36
36
44
45
44
MECHANISM ASSY
<M3>
MIC AMP
<06>
CAUTION LABEL
37
37
D.SW
<29>
15
12
13
BATTERY CAUTION
LABEL
16
53
53
38
38
38
38
C.SW
<28>
51
10G
10
10B
10A
10H
10C
10E
10D
10F
33
25
25
11
35
35
11A
LABEL
20
20A
30
30
17
18
OP BLOCK ASSY
<M4>

****

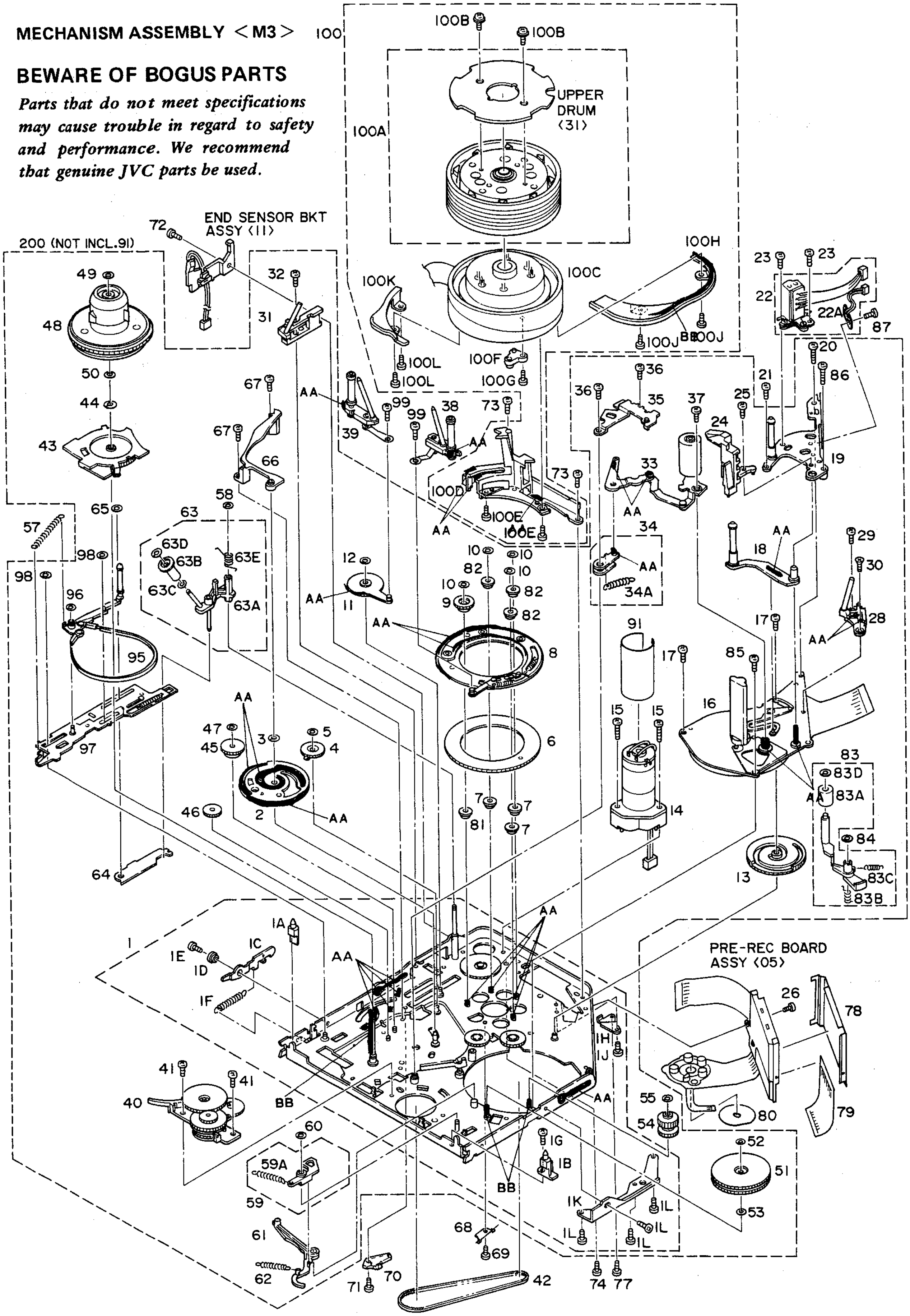
FINAL ASSEMBLY <M2>

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
⚠	1	YQ10189D-9	LOWER CASE ASSY
	1A	YU20115-4	SHEET
	1B	YQ41800	SHOE
	1C	YQ41801	SHOE SPRING
	1D	YQ30782-1-2	SHOE PLATE
	1E	SSSK2004D	SCREW,X2
	1F	YQM30032-1-2	SPECIAL SCREW,M2X4
	1G	YQ42001-1-2	BKT(FRONT)
	1H	YQ42033	SHIELD PLATE
	1J	YQM30032-1-2	SPECIAL SCREW,M2X4
	1K	YQM30019-12	PAD
	1L	YQ42077	INSULATOR
	1M	YQ30863	SHIELD(SHOE)
	1N	YQ30864	SHIELD(OP)
	1P	YQ42042	SHIELD PLATE
	1Q	YQ42074	WIRING SHEET
	2	YQ41834	HOOK
⚠	3	YQ10191D	BATTERY BASE ASSY
	3A	YQ20370-2	BUTTON(TRIGGER)
	3B	YQ20246B-6	BELT(GRIP)ASSY
	3C	ML-Y00536A-1	B/T WIRE ASSY
	3D	YQ42004	SHIELD SPACER
	5	YQ30648-2-2	ZOOM SWITCH
⚠	6	YQ20315C-4	FRONT COVER ASSY
	6A	YQ41803	INDICATOR
	6B	YQ30684	TITLE BUTTON
	6C	YQM30029-51	SPACER
⚠	7	YQ20347-3-7	TOP COVER
	8	YQ41910	SHOE
	9	YQ41913-1-1	SHOE SPRING
⚠	10	YQ10193D-18	UPPER CASE ASSY
	10A	YQ41741	BUTTON(FULL)
	10B	YQ30687	BUTTON(FOCUS)
	10C	YQ30688-1-3	BUTTON(FADER)
	10D	YQ41804-2	BUTTON(SUB TRI)
	10E	YQ42013	BKT(BOTTM)
	10F	YQM30032-1-2	SPECIAL SCREW,M2X4
	10G	YQM30029-48	SPACER
	10H	YQM30050-5	SPACER
⚠	11	YQ20317E-11	CASSETTE COVER ASSY
	11A	YQ30729E	CASSETTE WINDOW
⚠	12	YQ20319B-4	CLOCK BATTERY HOLDER ASSY
⚠	13	YQ30724-1-3	CLOCK BATTERY COVER
	15	YQ41811	KNOB,(REC TIME)
	16	YQ30725A-2	BASE ASSY
	17	YQ30730	HOOD
	18	YQ41805A-3	HOOD CAP ASSY
	19	YQ20321-2	OPERATION UNIT
	20	YQ30793A	MICROPHONE
	20A	YU41211-001	WIND SCREEN
⚠	21	YU20099-2	BATTERY BASE SHEET
	24	YQM30032-4-2	SPECIAL SCREW,X3 M2X6
	25	YQM30032-2-2	SPECIAL SCREW,X4 M2X5
	26	YQM30032-1-2	SPECIAL SCREW,X2 M2X4
	27	YQM30032-4-2	SPECIAL SCREW,X2 M2X6
	28	YQM30032-4-2	SPECIAL SCREW,X2 M2X6
	29	YQM30032-41	SPECIAL SCREW,M2X11
	30	YQM30032-6-2	SPECIAL SCREW,X2 M2X8
	31	SSSK2004D	SCREW,X2
	32	YQM30032-5-2	SPECIAL SCREW,X2 M2X6
	33	YQM30032-4-2	SPECIAL SCREW,M2X6
	34	YQM30032-4-2	SPECIAL SCREW,M2X6
	35	YQM30032-1-2	SPECIAL SCREW,X2 M2X4
	36	YQM30032-29	SCREW,X3 M2X6
	37	YQM30032-2-2	SPECIAL SCREW,X2 M2X5
	38	YQM30032-2-2	SPECIAL SCREW,X4 M2X5
	39	YQM30032-2-2	SPECIAL SCREW,M2X5
	40	SPSH1725M	SCREW
	41	YQ41343	SPECIAL SCREW,M1.7X4
	42	YU41678-2	A/V-CTL FPC
	43	YU41679-4	MAIN-CV FPC
	44	SPSH1725M	SCREW,X2
	45	YQ31008A	HOUSING ASSY
	51	YQM30032-1-2	SPECIAL SCREW,M2X4
	52	YQM30032-1-2	SPECIAL SCREW,M2X4
	53	YQM30032-1-2	SPECIAL SCREW,X2 M2X4
	70	SPSH1725M	SCREW,X4

6.4 MECHANISM ASSEMBLY <M3>

BEWARE OF BOGUS PARTS

Parts that do not meet specifications may cause trouble in regard to safety and performance. We recommend that genuine JVC parts be used.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PRE-REC BOARD ASSY <05>
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Category	Part number	MARK
Grease	KANTO-G-31KAV	AA
Oil	COSMO-HV56	BB

NOTE: The section marked in AA and BB indicate lubrication and greasing areas.

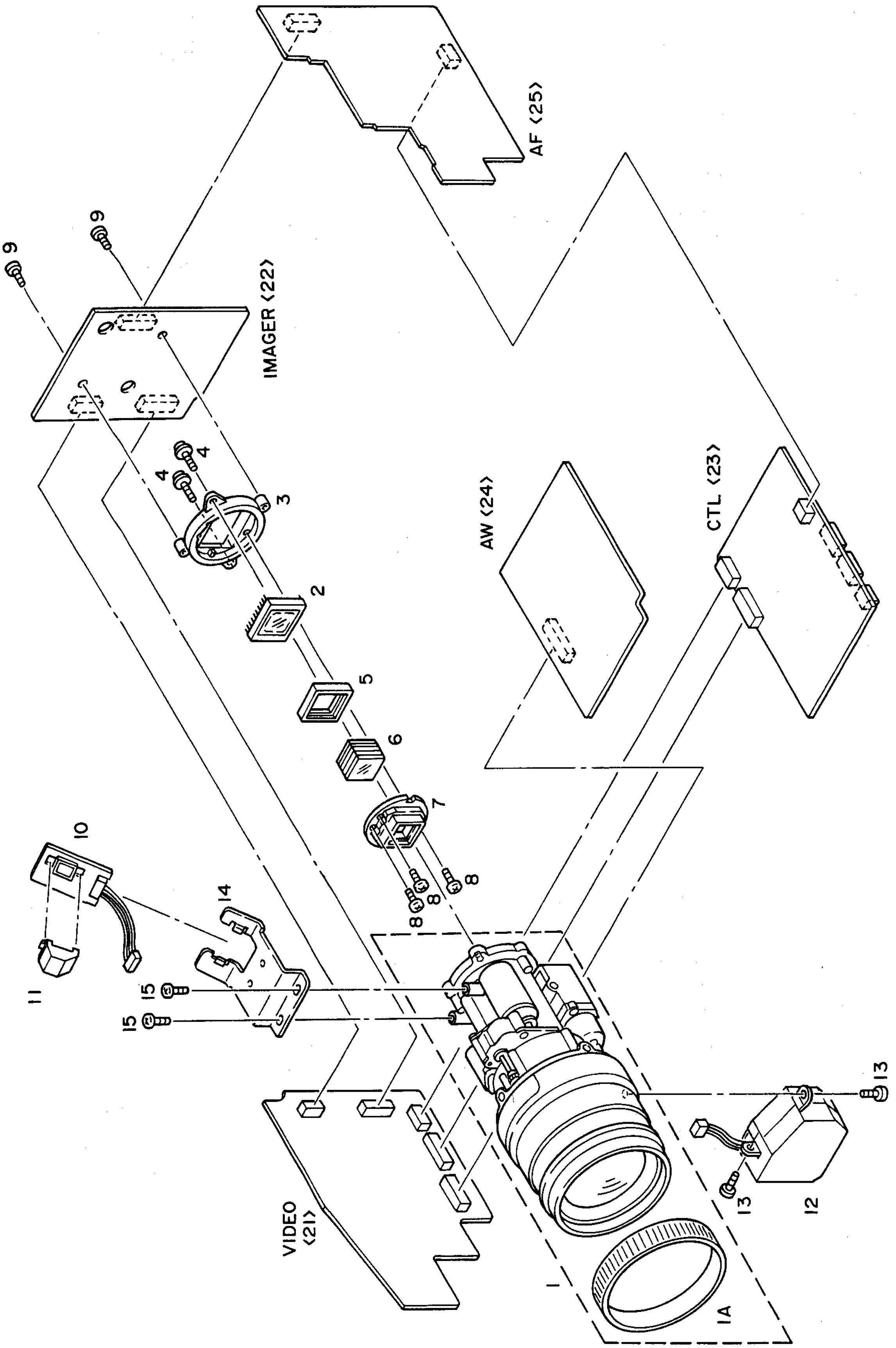
****

MECHANISM ASSEMBLY <M3>

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION
1	YQ10172D-25	MAIN DECK ASSY
1A	YQ41500-1-1	GUIDE PIN(S)
1B	YQ41501-1-3	GUIDE PIN(T)
1C	YQ41621-1-2	CANCEL PLATE
1D	YQ41622-1-1	COLLAR
1E	SPSH1725M	SCREW
1F	YQM30001-49-12	TENSION SPRING
1G	SPSH1725M	SCREW
1H	YQ41867	SUPPORT PLATE
1J	SPSH1720M	SCREW
1K	YQ41814-1-2	DECK SUPPORT
1L	SPSK1725M	SCREW,X4
2	YQ20294-1-4	CONTROL CAM GEAR
3	PQM30017-25	SLIT WASHER
4	YQ41796	LOADING GEAR 2
5	PQM30017-27	SLIT WASHER
	or YQM30017-1	SLIT WASHER
6	YQ41503-1-4	DRIVE GEAR
7	YQ41901-1-1	LOADING GUIDE,X3
8	YQ41506B	LOADING RING ASSY
9	YQ42048	SUP MIDDLE GEAR
10	PQM30017-27	SLIT WASHER,X4
11	YQ41511B	SUPPLY LOADING GEAR ASSY
12	PQM30017-27	SLIT WASHER
13	YQ30640	MIDDLE POLE CAM GEAR
⚠ 14	YU41403T-1	MODE CONTROL MOTOR ASSY
15	SPSH1710M	SCREW,X2
⚠ 16	YU41404V-5	CAPSTAN MOTOR ASSY
17	SPSH1725M	SCREW,X2
18	YQ41517A-7	MIDDLE POLE ARM ASSY
19	YQ41996A-3	SUB DECK ASSY
20	SPSH1760M	SCREW
21	SPSK1720M	MINI SCREW
22	YQ41930A-3	A/C HEAD FINAL ASSY
22A	YU41719	DEW SENSER
23	YQ40904A-1	ALOCK SCREW,X2
24	YQ30642-1-10	CASSETTE BLOCK
25	SPSH1735M	SCREW
26	SPSH1720M	SCREW
28	YQ42089A-1	MIDDEL CACHER ASSY
29	SPSH1720M	SCREW
30	SSSH1730M	SCREW
31	YQ41535A	SUPPLY SLANT POLE ASSY
32	SPSH1735M	SCREW
33	YQ30606B	PINCH ROLLER ARM ASSY
34	YQ41544A	SPRING PLATE ASSY
34A	YQ41551-1	T.SPRING
35	YQ41552A-5	GUIDE PLATE ASSY
36	SPSH1425M	SCREW,X2
37	YQM30032-21	SPECIAL SCREW,M1.7X3
38	YU41444-1-6	TAKE UP POLE BASE ASSY
39	YU41445-2-5	SUPPLY POLE BASE ASSY
40	YU41406-1-6	CENTER GEAR ASSY
41	SPSH1725M	SCREW,X2
42	YQ41558	TIMING BELT
43	YU41407-1-3	CAM SW ASSY
44	PQM30017-22	SLIT WASHER
45	YQ41559	ENCCODER GEAR(1)
46	YQ41560	ENCODER GEAR(2)
47	PQM30017-27	SLIT WASHER
	or YQM30017-1	SLIT WASHER
48	YU41408-1-2	SUPPLY REEL DISK ASSY
49	PQM30017-27	SLIT WASHER
50	Q03093-835	WASHER

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION
51	YU41459-1-2	TAKE-UP CLUTCH ASSY
52	PQM30017-27	SLIT WASHER
53	Q03093-835	WASHER
54	YQ41562	TAKE-UP GEAR
55	PQM30017-27	SLIT WASHER
57	YQ41963	TENSION SPRING
58	PQM30017-27	SLIT WASHER
59	YQ41628A	SEARCH BRAKE ASSY
59A	YQ41551-2	TENSION SPRING
60	PQM30017-27	SLIT WASHER
61	YQ41756-1-4	BRAKE DRIVE LEVER
62	YQ41625	TENSION SPRING
63	YQ41585A-6	IMPEDANCE ROLLER ARM ASSY
63A	YQ41586A-1	IMPEDANCE ROLLER ARM SUB ASSY
63B	YQ41588A-3	IMPEDANCE ROLLER ASSY
63C	Q03093-835	WASHER
63D	PQM30017-27	SLIT WASHER
63E	YQ41664	TORSION SPRING
64	YQ42081	CANCEL LEVER
65	PQM30017-27	SLIT WASHER
66	YDM2046-2-6	SUP GUIDE RAIL
67	SPSH1735M	SCREW,X2
68	YU41447-1-4	BRUSH
69	SPSH1735M	SCREW
70	YQ30615-1-2	LED GUIDE
71	SPSH1720M	SCREW
72	SPSH1735M	SCREW
73	SPSK1735M	SCREW,X2
74	SPSH1725M	SCREW
77	SPSK1420M	SCREW
78	YQ30830A	SHIELD CASE ASSY
79	YU41387-2	FPC 2
80	YU41821-1-1	SHIELD PLATE
81	YQ41902-1-1	LOADING GUIDE 2
82	YQ41904	L.WASHER,X3
83	YQ41988A-5	HEAD CLEANER ASSY
83A	YQ41990	CLEANER
83B	YQ42047-1-1	SPRING
83C	YQ41994-1-1	TENSHION SPRING
83D	PQM30017-27	SLIT WASHER
84	PQM30017-27	SLIT WASHER
85	SPSH1730M	MINI SCREW
86	SPSH1735M	SCREW
87	SPSH1720M	SCREW
91	YQ41920	SHIELD COVER
95	YQ41563B-8	TENSION ARM ASSY
96	PQM30017-27	SLIT WASHER
97	YQ41577A-8	SLIDE PLATE ASSY
98	PQM30017-27	SLIT WASHER,X2
	or YQM30017-1	SLIT WASHER,X2
99	YQ42009	SPECIAL SCREW,X2 M1.2X1.5
100	YDV2029A	DRUM ASSY
100A	YDM2047A	UPPER DRUM ASSY
100B	YDM4031	SCREW,X2
100C	YDM2049C	LOWER DRUM MOTOR ASSY
100D	YDM2044-1-13	UV BASE
100E	SPSK1730M	SCREW,X2
100F	YDM4073	DRUM SPACER
100G	SPSK1730M	SCREW
100H	YDM2045-1-4	TU GUIDE RAIL
100J	SPSH1725M	SCREW,X2
100K	YDM2046-1-8	SUP GUIDE RAIL
100L	SPSH1725M	SCREW,X2
200	YMA0005A	MECHA(A) ASSY

6.5 OPTICAL BLOCK ASSEMBLY < M4 >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VIDEO <21>
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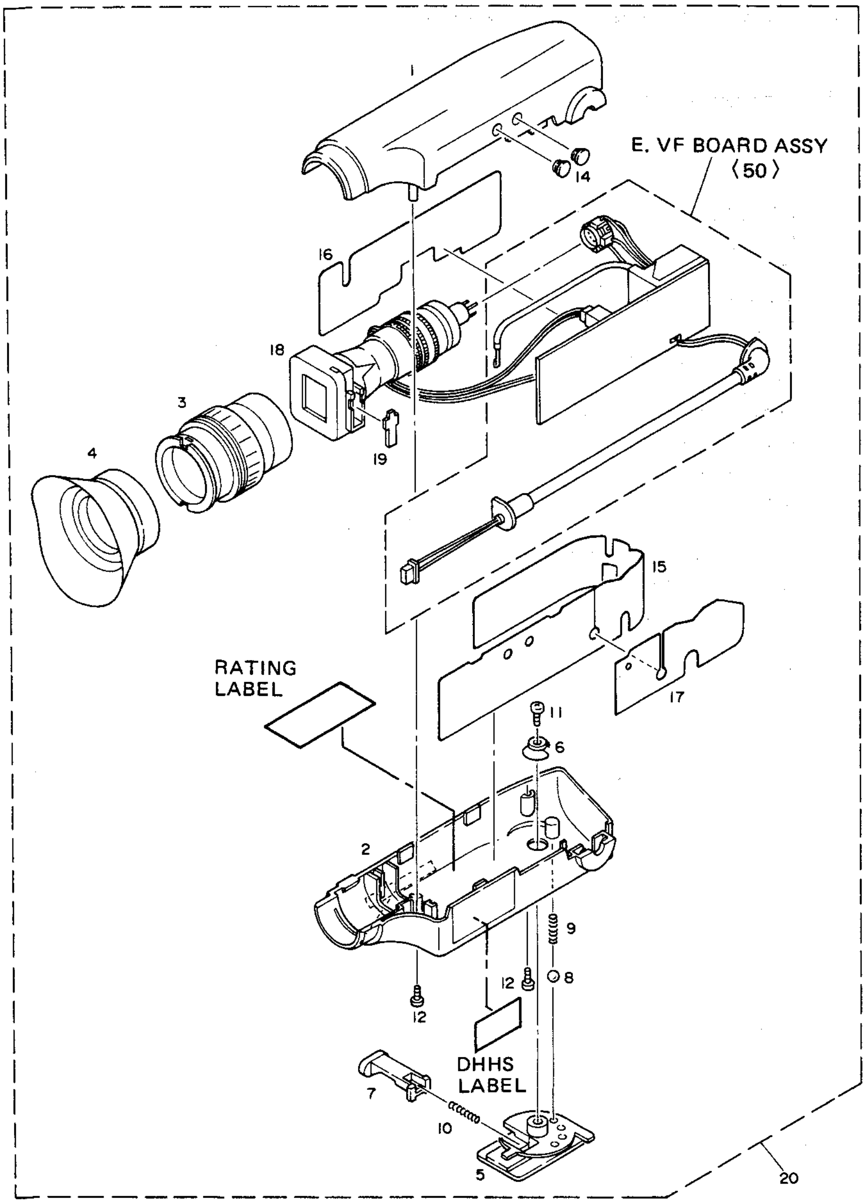
#⚠ REF No.	PART No.	PART NAME, DESCRIPTION
*******	*********	*********************

OPTICAL BLOCK ASSEMBLY <M4>

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
⚠	1	YU30366-3-5	OPTICAL BLOCK ASSY
	1A	YU30366-001	RUBBER
⚠	2	ICX026BK-8	IC(CCD)
	3	YQ30598-1-2	IMAGER HOLDER
	4	DPSP2009Z	SCREW,X2
	5	PQ42339	SPACER RUBBER
	6	YU41664	OPTICAL LPF
	7	YQ30096-2	OPTICAL LPF HOLDER
	8	SPSK2004F	MINI SCREW,X3
	9	SPSP2004Z	SCREW,X2
	10	YU41650	WHITE BALANCE SENSOR MODULE
	11	YQ41799	WHITE BALANCE FILTER
	12	YU41633-2	DC-DC CONVERTER
	13	YQM30032-11-2	SPECIAL SCREW,X2 M2X4
	14	YQ41812	BKT(OP UPPER)
	15	YQM30032-4-2	SPECIAL SCREW,X2 M2X6

6.6 ELECTRICAL VIEW FINDER ASSEMBLY < M5 >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E. VF BOARD ASSY
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RATING
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#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	8	YQ30723-017	STEEL BALL
	9	YQ30723-018	SPRING
	10	YQ30723-019	SPRING
	11	YQ30723-020	SCREW
	12	YU30045-014	SCREW,X2
	14	YU30045-024	CAP
	15	YQ30723-021	INSULATOR L
	16	YQ30723-013	INSULATOR
	17	YQ30723-022	SHIELD
	18	YQ30723-023	CRT/DY ASSY
⚠	19	YU30181-014	HIGH VOLTAGE COVER
⚠	20	YQ30723B	ELECTRONIC VIEW FINDER ASSY

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ELECTRICAL VIEWFINDER ASSEMBLY <M5>

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
⚠	1	YQ30723-001	TOP CASE
⚠	2	YQ30723-006	BOTTOM CASE
	3	YQ30723-011	LENS ASSY
	4	YQ30723-012	EYE CAP
	5	YQ30723-014	SHOE
	6	YQ03723-015	SHOE COVER
	7	YQ30723-016	LEVER

SECTION 7
ELECTRICAL PARTS LIST

SAFETY PRECAUTION

Parts identified by the ⚠ symbol are critical for safety. Replace only with specified part numbers.

NOTES:
- [2 digits] indicates circuit board symbol number.
- "X " indicates quantity per set.

****

MAIN BOARD ASSEMBLY <01>

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION
PWBA	YB10062C-01	MAIN BOARD ASSY
IC101	JCY0001A2	IC
	or JCY0001A1	IC
IC102	JCY0002A1	IC
IC104	M56780VP	IC
IC105	BA7043FS	IC
IC251	VC5035	IC
IC252	LB1617M-J	IC
IC301	M37414M5-114FP	IC(CPU)
IC302	S-87050CF	IC
IC304	TC4S584F	IC
IC305	TC4S584F	IC
IC306	M54543AFP	IC
Q1	UN9213	TRANSISTOR
	or DTC144EE	TRANSISTOR
Q101	UN9213	TRANSISTOR
	or DTC144EE	TRANSISTOR
Q102	UN9214	TRANSISTOR
	or DTC114EE	TRANSISTOR
Q103	UN9213	TRANSISTOR
	or DTC144EE	TRANSISTOR
Q104	XP4601	TRANSISTOR
	or UMZ1	TRANSISTOR
Q106	UMZ1	TRANSISTOR
	or XP4601	TRANSISTOR
Q110	2SA1576(RS)	TRANSISTOR
Q111	2SD2216(RS)	TRANSISTOR
	or 2SC4617(RS)	TRANSISTOR
Q112	UN9113	TRANSISTOR
	or DTA144EE	TRANSISTOR
Q113	UN9113	TRANSISTOR
	or DTA144EE	TRANSISTOR
Q114	2SD2216(RS)	TRANSISTOR
	or 2SC4617(RS)	TRANSISTOR
Q117	UN9213	TRANSISTOR
	or DTC144EE	TRANSISTOR
Q118	2SD2216(RS)	TRANSISTOR
	or 2SC4617(RS)	TRANSISTOR
Q120	UN9113	TRANSISTOR
	or DTA144EE	TRANSISTOR
Q121	2SA1576(RS)	TRANSISTOR
Q122	UN9213	TRANSISTOR
	or DTC144EE	TRANSISTOR
Q123	UMG2	TRANSISTOR
	or XP1213	TRANSISTOR
Q124	UMG2	TRANSISTOR
	or XP1213	TRANSISTOR
Q251	2SA1576(RS)	TRANSISTOR
Q252	DTC144EE	TRANSISTOR
	or UN9213	TRANSISTOR
Q301	DTC144EE	TRANSISTOR
	or UN9213	TRANSISTOR
Q302	2SA1774(QRS)	TRANSISTOR
	or 2SB1462(RS)	TRANSISTOR
Q305	DTC144EE	TRANSISTOR
	or UN9213	TRANSISTOR
Q306	2SC4617(QRS)	TRANSISTOR
	or 2SD2216(RS)	TRANSISTOR
Q307	2SA1774(QRS)	TRANSISTOR
	or 2SB1462(RS)	TRANSISTOR
Q308	DTC144EE	TRANSISTOR
	or UN9213	TRANSISTOR
Q309	2SA1774(QRS)	TRANSISTOR
	or 2SB1462(RS)	TRANSISTOR
Q310	DTC144EE	TRANSISTOR
	or UN9213	TRANSISTOR
Q313	DTC144EE	TRANSISTOR
	or UN9213	TRANSISTOR
Q601	2SA1577(QR)	TRANSISTOR
Q602	2SC4617(RS)	TRANSISTOR
Q603	2SC4617(RS)	TRANSISTOR
Q604	2SC4617(RS)	TRANSISTOR
D101	MA132WK	DIODE
	or DAN222	DIODE
D102	RB451F	DIODE
D103	MA132WK	DIODE
	or DAN222	DIODE
D104	MA132WA	DIODE
D105	DAN222	DIODE
D111	RD6.8M(B1-3)	ZENER DIODE
D112	RD6.8M(B1-3)	ZENER DIODE
D251	DAN222	DIODE
D252	MA141WK	DIODE
D301	DAN222	DIODE
	or MA132WK	DIODE
D304	SIM-125ST	LED
	or SIM-1251ST	LE DIODE

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
D306	DTZ6.8	ZENER DIODE	
D307	DAN222	DIODE	
	or MA132WK	DIODE	
D309	MA132WA	DIODE	
D310	MA132WA	DIODE	
D311	RD6.8M(B1-3)	ZENER DIODE	
D312	RD6.8M(B1-3)	ZENER DIODE	
R101	NRSC2AJ-561A	RESISTOR	560Ω
R103	NVP1201-474N	V RESISTOR,PB SWITCHING POINT	470KΩ,1/2W
R104	NRSA63J-124N	RESISTOR	120KΩ,1/16W
R107	NRSC2AJ-102A	RESISTOR	1KΩ
R108	NRSC2AJ-102A	RESISTOR	1KΩ
R112	NRSC2AJ-0R0A	RESISTOR	0Ω
R113	NRSC2AJ-561A	RESISTOR	560Ω
R114	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R115	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R116	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R117	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R120	NRVA62D-103N	RESISTOR	10KΩ,1/16W
R121	NRVA62D-123N	RESISTOR	12KΩ,1/16W
R122	NRSA63J-152N	RESISTOR	1.5KΩ,1/16W
R123	NRVA62D-223N	RESISTOR	22KΩ,1/16W
R124	NRSA63J-682N	RESISTOR	6.8KΩ,1/16W
R125	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R126	NRSA63J-223N	RESISTOR	22KΩ,1/16W
R127	NRSA63J-683N	RESISTOR	68KΩ,1/16W
R128	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R129	NRSA63J-334N	RESISTOR	330KΩ,1/16W
R130	NRSA63J-105N	RESISTOR	1MΩ,1/16W
R131	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R132	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R133	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R135	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R140	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R141	NRSA63J-823N	RESISTOR	82KΩ,1/16W
R142	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R143	NRSA63J-334N	RESISTOR	330KΩ,1/16W
R144	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R145	NRSA63J-105N	RESISTOR	1MΩ,1/16W
R146	NRSA63J-105N	RESISTOR	1MΩ,1/16W
R147	NRSA63J-154N	RESISTOR	150KΩ,1/16W
R148	NRSA63J-154N	RESISTOR	150KΩ,1/16W
R149	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R151	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R160	NRSA63J-913N	RESISTOR	91KΩ,1/16W
R161	NRSA63J-105N	RESISTOR	1MΩ,1/16W
R162	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R163	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
R164	NRSA63J-474N	RESISTOR	470KΩ,1/16W
R165	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R166	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R170	NRSA63J-102N	RESISTOR	1KΩ,1/16W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R172	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R173	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R174	NRSA63J-274N	RESISTOR	270KΩ,1/16W
R175	NRSA63J-684N	RESISTOR	680KΩ,1/16W
R176	NRSA63J-392N	RESISTOR	3.9KΩ,1/16W
R180	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R181	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R182	NRSA63J-273N	RESISTOR	27KΩ,1/16W
R183	NRSA63J-390N	RESISTOR	39Ω,1/16W
R185	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R188	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R190	NRSA63J-333N	RESISTOR	33KΩ,1/16W
R191	NRSA63J-333N	RESISTOR	33KΩ,1/16W
R196	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R198	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R199	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R200	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R203	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R204	NRSA63J-273N	RESISTOR	27KΩ,1/16W
R205	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R206	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R207	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R208	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R251	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R252	NRSA63J-154N	RESISTOR	150KΩ,1/16W
R253	NRSA63J-153N	RESISTOR	15KΩ,1/16W
R254	NRSA63J-333N	RESISTOR	33KΩ,1/16W
R255	NRSA63J-273N	RESISTOR	27KΩ,1/16W
R257	NRSA63J-121N	RESISTOR	120Ω,1/16W
R258	NRSA63J-393N	RESISTOR	39KΩ,1/16W
R261	NRSA63K-2R2N	RESISTOR	2.2Ω,1/16W
R262	NRSA63K-2R2N	RESISTOR	2.2Ω,1/16W
R263	NRSA63K-2R2N	RESISTOR	2.2Ω,1/16W
R264	YU41353-R68N	RESISTOR	
R276	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R277	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R278	NRSA63J-241N	RESISTOR	240Ω,1/16W
R279	NRSA63K-2R2N	RESISTOR	2.2Ω,1/16W
R280	NRSA63K-2R2N	RESISTOR	2.2Ω,1/16W
R281	NRSA63K-2R2N	RESISTOR	2.2Ω,1/16W
R282	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R283	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R301	NRSC2AJ-473A	RESISTOR	47KΩ
R302	NRSC2AJ-104A	RESISTOR	100KΩ
R303	NRSC2AJ-473A	RESISTOR	47KΩ
R304	NRSC2AJ-472A	RESISTOR	4.7KΩ
R305	NRSC2AJ-103A	RESISTOR	10KΩ
R306	NRSC2AJ-472A	RESISTOR	4.7KΩ
R308	NRSC2AJ-105A	RESISTOR	1MΩ
R309	NRSC2AJ-102A	RESISTOR	1KΩ
R310	NRSC2AJ-473A	RESISTOR	47KΩ
R311	NRSC2AJ-102A	RESISTOR	1KΩ
R312	NRSC2AJ-102A	RESISTOR	1KΩ

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
R313	NRSC2AJ-103A	RESISTOR	10KΩ
R314	NRSC2AJ-153A	RESISTOR	15KΩ
R315	NRSC2AJ-472A	RESISTOR	4.7KΩ
R316	NRSC2AJ-472A	RESISTOR	4.7KΩ
R317	NRSC2AJ-104A	RESISTOR	100KΩ
R318	NRSC2AJ-103A	RESISTOR	10KΩ
R321	NRSC2AJ-0R0A	RESISTOR	0Ω
R322	NRSC2AJ-102A	RESISTOR	1KΩ
R323	NRVA62D-563N	RESISTOR	56KΩ,1/16W
R324	NRVA62D-203N	RESISTOR	20KΩ,1/16W
R325	NRVA62D-683N	RESISTOR	68KΩ,1/16W
R326	QRSA08J-0R0	RESISTOR	0Ω,1/10W
R327	NRSC2AJ-473A	RESISTOR	47KΩ
R328	NRSC2AJ-102A	RESISTOR	1KΩ
R332	NRSC2AJ-473A	RESISTOR	47KΩ
R333	NRSC2AJ-153A	RESISTOR	15KΩ
R334	NRSC2AJ-153A	RESISTOR	15KΩ
R335	NRSC2AJ-473A	RESISTOR	47KΩ
R336	NRSC2AJ-473A	RESISTOR	47KΩ
R337	NRSC2AJ-473A	RESISTOR	47KΩ
R339	NRSC2AJ-105A	RESISTOR	1MΩ
R340	NRSC2AJ-153A	RESISTOR	15KΩ
R341	NRSC2AJ-105A	RESISTOR	1MΩ
R342	NRSC2AJ-222A	RESISTOR	2.2KΩ
R343	NRSC2AJ-105A	RESISTOR	1MΩ
R344	NRSC2AJ-103A	RESISTOR	10KΩ
R345	NRSC2AJ-472A	RESISTOR	4.7KΩ
R346	NRSC2AJ-472A	RESISTOR	4.7KΩ
R347	NRSC2AJ-333A	RESISTOR	33KΩ
R348	NRSC2AJ-273A	RESISTOR	27KΩ
R349	NRSC2AJ-102A	RESISTOR	1KΩ
R350	NRSC2AJ-102A	RESISTOR	1KΩ
R351	NRSA63J-181N	RESISTOR	180Ω,1/16W
R352	NRSC2AJ-102A	RESISTOR	1KΩ
R357	NRSC2AJ-153A	RESISTOR	15KΩ
R358	NRSC2AJ-102A	RESISTOR	1KΩ
R366	NRSA63J-153N	RESISTOR	15KΩ,1/16W
R367	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R368	NRSC2AJ-103A	RESISTOR	10KΩ
R369	NRSC2AJ-472A	RESISTOR	4.7KΩ
R370	NRSC2AJ-472A	RESISTOR	4.7KΩ
R371	NRSC2AJ-102A	RESISTOR	1KΩ
R373	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R394	NRSC2AJ-105A	RESISTOR	1MΩ
R395	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R396	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R601	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R602	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
R603	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R604	NRSA63J-153N	RESISTOR	15KΩ,1/16W
R605	NRSA63J-393N	RESISTOR	39KΩ,1/16W
R606	NRSA63J-393N	RESISTOR	39KΩ,1/16W
R607	NRSA63K-5R6N	RESISTOR	5.6Ω,1/16W

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
R608	NRSA63K-5R6N	RESISTOR	5.6Ω,1/16W
RA101	YU40172-332N	NETWORK RESISTOR	
RA103	YU40172-102N	NETWORK RESISTOR	
RA104	YU40172-102N	NETWORK RESISTOR	
C1	NEE21DM-475R	TANTAL CAPACITOR	4.7μF,20V
C2	NEE21DM-475R	TANTAL CAPACITOR	4.7μF,20V
C3	NEE21DM-475R	TANTAL CAPACITOR	4.7μF,20V
C4	NEE21DM-475R	TANTAL CAPACITOR	4.7μF,20V
C5	NEE21DM-475R	TANTAL CAPACITOR	4.7μF,20V
C7	NEE21DM-475R	TANTAL CAPACITOR	4.7μF,20V
C101	NEE21AM-106R	TANTAL CAPACITOR	10μF,10V
C102	NEE21AM-106R	TANTAL CAPACITOR	10μF,10V
C103	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C105	NCB31HK-102A	CAPACITOR	0.001μF,50V
C106	NCB31HK-392A	CAPACITOR	0.0039μF,50V
C110	NCB31EK-103A	CAPACITOR	0.01μF,25V
C111	QCY81EK-104	CAPACITOR	0.1μF,25V
C112	NCB31HK-222A	CAPACITOR	0.0022μF,50V
C113	NCB31EK-223A	CAPACITOR	0.022μF,25V
C114	NCB31HK-102A	CAPACITOR	0.001μF,50V
C115	NCB31HK-102A	CAPACITOR	0.001μF,50V
C116	NEN11EM-226N	E CAPACITOR	22μF,25V
C117	QCFA1CZ-105	CAPACITOR	1μF,16V
C120	NCB31EK-223A	CAPACITOR	0.022μF,25V
C121	QCY81CK-224	CAPACITOR	0.22μF,16V
C122	NCB31HK-222A	CAPACITOR	0.0022μF,50V
C123	NCB31EK-223A	CAPACITOR	0.022μF,25V
C124	NCB31HK-102A	CAPACITOR	0.001μF,50V
C125	NCB31HK-102A	CAPACITOR	0.001μF,50V
C126	NEN10JM-106N	E CAPACITOR	10μF,6.3V
C127	QCFA1CZ-105	CAPACITOR	1μF,16V
C128	QCFA1CZ-105	CAPACITOR	1μF,16V
C130	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C131	NCS31HJ-100A	CAPACITOR	10PF,50V
C134	NCB31HK-102A	CAPACITOR	0.001μF,50V
C135	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C136	NCT06CH-101A	CAPACITOR	100PF
C138	NCB31HK-562A	CAPACITOR	0.0056μF,50V
C139	QCFA1CZ-105	CAPACITOR	1μF,16V
C140	QCFA1CZ-105	CAPACITOR	1μF,16V
C147	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C148	NCB31EK-103A	CAPACITOR	0.01μF,25V
C150	NCB31EK-103A	CAPACITOR	0.01μF,25V
C151	NCR21CK-473A	CAPACITOR	0.047μF,16V
C152	NCB31EK-103A	CAPACITOR	0.01μF,25V
C153	NCB31EK-103A	CAPACITOR	0.01μF,25V
C155	NEE21AM-106R	TANTAL CAPACITOR	10μF,10V
C156	QCYA1EK-223	CAPACITOR	0.022μF,25V
C160	NEE21AM-106R	TANTAL CAPACITOR	10μF,10V
C161	NCT06CH-101A	CAPACITOR	100PF
C162	NCB31HK-822A	CAPACITOR	0.0082μF,50V

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	C175	NCB31EK-223A	CAPACITOR	0.022μF,25V
	C176	NCB31EK-223A	CAPACITOR	0.022μF,25V
	C177	NCB31EK-223A	CAPACITOR	0.022μF,25V
	C178	NCB31HK-332A	CAPACITOR	0.0033μF,50V
	C179	NCB31HK-102A	CAPACITOR	0.001μF,50V
	C251	NEE21AM-106R	TANTAL CAPACITOR	10μF,10V
	C252	NEE41DM-474R	TANTAL CAPACITOR	0.47μF,20V
	C253	NCB31HK-331A	CAPACITOR	330PF,50V
	C255	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C257	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C258	QCY81EK-104	CAPACITOR	0.1μF,25V
	C259	QCF81CZ-105	CAPACITOR	1μF,16V
	C260	QCF81CZ-105	CAPACITOR	1μF,16V
	C261	QCF81CZ-105	CAPACITOR	1μF,16V
	C265	NCR21CK-473A	CAPACITOR	0.047μF,16V
	C266	NEE41AM-105R	TANTAL CAPACITOR	1μF,10V
	C267	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C268	NCB31HK-681A	CAPACITOR	680PF,50V
	C269	NCB31HK-332A	CAPACITOR	0.0033μF,50V
	C276	NCB31EK-223A	CAPACITOR	0.022μF,25V
	C277	NCB31EK-223A	CAPACITOR	0.022μF,25V
	C278	NCB31EK-223A	CAPACITOR	0.022μF,25V
	C279	QCF81CZ-105	CAPACITOR	1μF,16V
	C280	QCF81CZ-105	CAPACITOR	1μF,16V
	C281	QCF81CZ-105	CAPACITOR	1μF,16V
	C282	QCFA1EZ-104	CAPACITOR	0.1μF,25V
	C283	QCF81CZ-105	CAPACITOR	1μF,16V
	C301	NEE21CM-685R	TANTAL CAPACITOR	6.8μF,16V
	C302	YU40688-476N	E CAPACITOR	47μF
	C303	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C304	NCB31HK-102A	CAPACITOR	0.001μF,50V
	C305	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C306	NCB31HK-472A	CAPACITOR	0.0047μF,50V
	C307	NCB31HK-102A	CAPACITOR	0.001μF,50V
	C308	NCS31HJ-471A	CAPACITOR	470PF,50V
	C309	NCB31HK-103A	CAPACITOR	0.01μF,50V
	C311	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C312	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C313	NCS31HJ-220A	CAPACITOR	22PF,50V
	C314	NCS31HJ-220A	CAPACITOR	22PF,50V
	C315	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C316	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C601	QCTA1CH-5R0	CAPACITOR	5PF,16V
	C602	QCFA1EZ-104	CAPACITOR	0.1μF,25V
	C603	QCTA1CH-181	CAPACITOR	180PF,16V
	C604	QCTA1CH-181	CAPACITOR	180PF,16V
	C605	QCTA1CH-271	CAPACITOR	270PF,16V
	C606	QCTA1CH-101	CAPACITOR	100PF,16V
	L101	PU58201-270J	COIL	27μH
	L601	YU41135-470	COIL	47μH
	L602	YU41134-1R2M	COIL	1.2μH
⚠	L603	YU41368	OSC COIL	

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	TRAP1	YU41366	BEF,FT101
	TRAP2	YU41364	BEF,FT102
⚠	X301	YU41379	CRYSTAL RESONATOR
	SW301	YU41393	PUSH SWITCH,S301
	DD1	YU41369-3	DC-DC CONVERTER
	SLD1	YQ30746-1-2	SHIELD PLATE
	SLD2	YU30439	SHIELD PLATE
	SLD3	YQ41940	EARTH PLATE
	SLD5	YU41782	SHEET
	SLD6	YQ30675-1-1	SHIELD COVER
	SLD8	YU41812-1-1	SHIELD PLATE
	SLD9	YU41877	SHIELD PLATE
	SPC1	YQM30029-41	SPACER,X3
	SPC2	YQM30029-47	SPACER
	TP1	YU40581	TEST PIN,GND
	TP2	YU40581	TEST PIN,REG 8V
	TP3	YU40581	TEST PIN,REG 5V
	TP101	YU41389	TEST PIN,PB CTL PULSE
	TP102	YU41389	TEST PIN,CAP FG
	TP103	YU41389	TEST PIN,AVG FM
	TP104	YU41389	TEST PIN,CAP MON
	TP105	YU41389	TEST PIN,DRUM MON
	TP106	YU41389	TEST PIN,DRUM PG/FG
	TP107	YU41389	TEST PIN,DRUM FG
	TP108	YU41389	TEST PIN,DRUM PG
	CN1	YU41355-15	CAP HOUSING
	CN2	YU41355-13	CAP HOUSING
	CN3	YU41355-15	CAP HOUSING
	CN4	YU41356-3	CAP HOUSING
	CN6	YU41356-3	CAP HOUSING
	CN7	YU41355-8	CAP HOUSING
	CN8	YU41355-8	CAP HOUSING
	CN9	YU41358-30	CAP HOUSING,(BOARD TO BOARD)
	CN10	YU41361-16	CAP HOUSING,(BOARD TO BOARD)
	CN11	YU41356-6	CAP HOUSING
	CN12	YU41355-3	CAP HOUSING
	CN14	YU41358-6	CAP HOUSING,(BOARD TO BOARD)
	CN15	YU41356-4	CAP HOUSING
⚠	CP1	ICP-F20	CIRCUIT PROTECTOR

– OPE AMP BOARD ASSEMBLY –

	PWBA1	YB20377A-01	OPE AMP BOARD ASSY

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
IC106	BA10358F	IC	
	or XRA10358F	IC	
R155	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
R156	QRSA08J-562YN	RESISTOR	5.6KΩ,1/10W
R157	QRSA08J-563YN	RESISTOR	56KΩ,1/10W
R158	QRSA08J-334YN	RESISTOR	330KΩ,1/10W
R319	QRSA08J-105YN	RESISTOR	1MΩ,1/10W
R382	QRSA08J-224YN	RESISTOR	220KΩ,1/10W
R383	QRSA08J-124YN	RESISTOR	120KΩ,1/10W
R384	QRSA08J-102	RESISTOR	1KΩ,1/10W
R385	QRSA08J-223YN	RESISTOR	22KΩ,1/10W
C141	QCYA1HK-103	CAPACITOR	0.01μF,50V
C142	QCYA1EK-104	CAPACITOR	0.1μF,25V

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A/V BOARD ASSEMBLY <02>

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
PWBA	YB10083A	A/V BOARD ASSY	
IC1	BA7288K	IC	
	or XRA7288K	IC	
IC2	TL8808F	IC	
IC101	LA7316M	IC	
IC301	BA7751AF	IC	
IC302	XRA15218F	IC	
	or BA15218F	IC	
	or M5218FP	IC	
IC303	XRA15218F	IC	
	or BA15218F	IC	
	or M5218FP	IC	
Q1	2SA1576(QRS)	TRANSISTOR	
Q3	2SC4081(QRS)	TRANSISTOR	
Q4	DTC144EU	TRANSISTOR	
Q5	DTA144EU	TRANSISTOR	
Q6	DTC144EU	TRANSISTOR	
Q7	2SA1576(QRS)	TRANSISTOR	
Q8	2SC4081(QRS)	TRANSISTOR	
Q9	2SA1577(PQR)	TRANSISTOR	
Q10	2SA1577(PQR)	TRANSISTOR	
Q11	2SA1577(PQR)	TRANSISTOR	
Q12	2SC4081(QRS)	TRANSISTOR	
Q13	2SC4081(QRS)	TRANSISTOR	
Q14	2SC4081(QRS)	TRANSISTOR	
Q16	DTC144EU	TRANSISTOR	
Q17	2SC4081(QRS)	TRANSISTOR	
Q18	2SA1576(QRS)	TRANSISTOR	
Q19	DTC144EU	TRANSISTOR	
Q20	2SA1576(QRS)	TRANSISTOR	
Q21	DTC144EU	TRANSISTOR	
Q25	DTC144EU	TRANSISTOR	
Q302	DTC144EU	TRANSISTOR	
Q303	DTA143EU	TRANSISTOR	
Q304	FMW3	TRANSISTOR	
Q305	2SC4097(RS)	TRANSISTOR	
Q306	DTA143EU	TRANSISTOR	
Q307	FMG1	TRANSISTOR	
Q308	DTA143EU	TRANSISTOR	
Q311	2SC4081(RS)	TRANSISTOR	
Q312	2SC4081(RS)	TRANSISTOR	
Q313	2SC4081(RS)	TRANSISTOR	
Q314	2SC4081(RS)	TRANSISTOR	
D1	DA204U	DIODE	
D2	DAN202U	DIODE	
D3	DAN202U	DIODE	
D4	DAN202U	DIODE	
D5	DAN202U	DIODE	
D6	DAN202U	DIODE	
D7	DAN202U	DIODE	
D101	DAN202U	DIODE	
D102	DAN202U	DIODE	
R1	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R2	NRSA63J-272N	RESISTOR	2.7KΩ,1/16W
R3	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R4	NRSA63J-821N	RESISTOR	820Ω,1/16W
R5	NRSA63J-152N	RESISTOR	1.5KΩ,1/16W
R6	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R7	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R8	NRSA63J-563N	RESISTOR	56KΩ,1/16W
R9	NRSA63J-104N	RESISTOR	100KΩ,1/16W
R10	NRSA63J-561N	RESISTOR	560Ω,1/16W
R11	NVP1305-103N	V RESISTOR,EE Y LEVEL	10KΩ
R12	NRSA63J-221N	RESISTOR	220Ω,1/16W
R13	NVP1305-103N	V RESISTOR,EE COLOR LEVEL	10KΩ
R14	NRSA63J-824N	RESISTOR	820KΩ,1/16W
R15	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R16	NVP1305-473N	V RESISTOR,PB Y LEVEL	47KΩ
R17	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R18	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R19	NRSA63J-333N	RESISTOR	33KΩ,1/16W
R20	NRSA63J-153N	RESISTOR	15KΩ,1/16W
R21	NRSA63J-152N	RESISTOR	1.5KΩ,1/16W
R22	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R23	NRSA63J-272N	RESISTOR	2.7KΩ,1/16W
R24	NRSA63J-561N	RESISTOR	560Ω,1/16W
R25	NRSA63J-393N	RESISTOR	39KΩ,1/16W
R26	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R27	NRSA63J-152N	RESISTOR	1.5KΩ,1/16W
R28	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION
R29	NRSA63J-182N	RESISTOR 1.8KΩ,1/16W
R30	NRSA63J-123N	RESISTOR 12KΩ,1/16W
R31	NRSA63J-273N	RESISTOR 27KΩ,1/16W
R32	NVP1305-683N	V RESISTOR,DARK CLIP 68KΩ
R33	NRSA63J-333N	RESISTOR 33KΩ,1/16W
R34	NRSA63J-273N	RESISTOR 27KΩ,1/16W
R35	NVP1305-104N	V RESISTOR,WHITE CLIP 100KΩ
R36	NVP1305-223N	V RESISTOR,CARRIER 22KΩ
R37	NVP1305-103N	V RESISTOR,DEVIATION 10KΩ
R38	NRSA63J-103N	RESISTOR 10KΩ,1/16W
R39	NVP1305-102N	V RESISTOR, YNR INPUT LEVEL 1KΩ
R40	NRSA63J-271N	RESISTOR 270Ω,1/16W
R41	NRSA63J-561N	RESISTOR 560Ω,1/16W
R42	NRSA63J-331N	RESISTOR 330Ω,1/16W
R43	NRSA63J-122N	RESISTOR 1.2KΩ,1/16W
R44	NRSA63J-682N	RESISTOR 6.8KΩ,1/16W
R45	NRSA63J-332N	RESISTOR 3.3KΩ,1/16W
R46	NRSA63J-332N	RESISTOR 3.3KΩ,1/16W
R47	NRSA63J-682N	RESISTOR 6.8KΩ,1/16W
R48	NRSA63J-332N	RESISTOR 3.3KΩ,1/16W
R49	NRSA63J-682N	RESISTOR 6.8KΩ,1/16W
R50	NVP1305-222N	V RESISTOR,REC FM LEVEL 2.2KΩ
R51	NRSA63J-822N	RESISTOR 8.2KΩ,1/16W
R52	NRSA63J-822N	RESISTOR 8.2KΩ,1/16W
R53	NRSA63J-821N	RESISTOR 820Ω,1/16W
R54	NRSA63J-102N	RESISTOR 1KΩ,1/16W
R55	NRSA63J-122N	RESISTOR 1.2KΩ,1/16W
R56	NRSA63J-561N	RESISTOR 560Ω,1/16W
R57	NRSA63J-122N	RESISTOR 1.2KΩ,1/16W
R58	NRSA63J-681N	RESISTOR 680Ω,1/16W
R59	NRSA63J-331N	RESISTOR 330Ω,1/16W
R60	NRSA63J-102N	RESISTOR 1KΩ,1/16W
R62	NRSA63J-122N	RESISTOR 1.2KΩ,1/16W
R64	NRSA63J-821N	RESISTOR 820Ω,1/16W
R65	NRSA63J-152N	RESISTOR 1.5KΩ,1/16W
R66	NVP1305-681N	V RESISTOR,320 fH VCO 680Ω
R67	NRSA63J-681N	RESISTOR 680Ω,1/16W
R68	NRSA63J-561N	RESISTOR 560Ω,1/16W
R69	NRSA63J-562N	RESISTOR 5.6KΩ,1/16W
R70	NRSA63J-122N	RESISTOR 1.2KΩ,1/16W
R71	NRSA63J-821N	RESISTOR 820Ω,1/16W
R72	NRSA63J-391N	RESISTOR 390Ω,1/16W
R73	NRSA63J-391N	RESISTOR 390Ω,1/16W
R74	NRSA63J-222N	RESISTOR 2.2KΩ,1/16W
R75	NRSA63J-222N	RESISTOR 2.2KΩ,1/16W
R76	NRSA63J-102N	RESISTOR 1KΩ,1/16W
R77	NRSA63J-102N	RESISTOR 1KΩ,1/16W
R78	NRSA63J-102N	RESISTOR 1KΩ,1/16W
R79	NRSA63J-561N	RESISTOR 560Ω,1/16W
R80	NRSA63J-332N	RESISTOR 3.3KΩ,1/16W
R81	NRSA63J-682N	RESISTOR 6.8KΩ,1/16W
R82	NRSA63J-103N	RESISTOR 10KΩ,1/16W
R83	NRSA63J-121N	RESISTOR 120Ω,1/16W
R92	NRSA63J-0R0A	RESISTOR 0Ω,1/16W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION
R101	NRSA63J-472N	RESISTOR 4.7KΩ,1/16W
R102	NVP1305-102N	V RESISTOR,PB BURST LEVEL 1KΩ
R103	NRSA63J-104N	RESISTOR 100KΩ,1/16W
R104	NRSA63J-822N	RESISTOR 8.2KΩ,1/16W
R105	NRSA63J-223N	RESISTOR 22KΩ,1/16W
R106	NRSA63J-271N	RESISTOR 270Ω,1/16W
R107	NRSA63J-102N	RESISTOR 1KΩ,1/16W
R108	NRSA63J-102N	RESISTOR 1KΩ,1/16W
R109	NRSA63J-122N	RESISTOR 1.2KΩ,1/16W
R110	NRSA63J-332N	RESISTOR 3.3KΩ,1/16W
R111	NRSA63J-122N	RESISTOR 1.2KΩ,1/16W
R112	NRSA63J-102N	RESISTOR 1KΩ,1/16W
R113	NVP1305-102N	V RESISTOR,PB COLOR LEVEL 1KΩ
R114	NRSA63J-151N	RESISTOR 150Ω,1/16W
R115	NRSA63J-821N	RESISTOR 820Ω,1/16W
R117	NVP1305-221N	V RESISTOR,REC COLOR LEVEL 220Ω
R119	NRSA63J-122N	RESISTOR 1.2KΩ,1/16W
R301	NRSA63J-0R0A	RESISTOR 0Ω,1/16W
R303	NRSA63J-471N	RESISTOR 470Ω,1/16W
R304	NRSA63J-823N	RESISTOR 82KΩ,1/16W
R305	NRSA63J-470N	RESISTOR 47Ω,1/16W
R306	NRSA63J-334N	RESISTOR 330KΩ,1/16W
R307	NRSA63J-822N	RESISTOR 8.2KΩ,1/16W
R308	NRSA63J-682N	RESISTOR 6.8KΩ,1/16W
R312	NRSA63J-101N	RESISTOR 100Ω,1/16W
R313	NRVA62D-104N	RESISTOR 100KΩ,1/16W
R314	NRVA62D-104N	RESISTOR 100KΩ,1/16W
R315	NRVA62D-104N	RESISTOR 100KΩ,1/16W
R316	NRVA62D-513N	RESISTOR 51KΩ,1/16W
R317	NRSA63J-472N	RESISTOR 4.7KΩ,1/16W
R318	NRSA63J-331N	RESISTOR 330Ω,1/16W
R319	NRSA63J-102N	RESISTOR 1KΩ,1/16W
R320	NVP1305-103N	V RESISTOR,AUDIO PB LEVEL 10KΩ
R321	NRSA63J-332N	RESISTOR 3.3KΩ,1/16W
R322	NRSA63J-822N	RESISTOR 8.2KΩ,1/16W
R323	NRSA63J-223N	RESISTOR 22KΩ,1/16W
R324	NRSA63J-105N	RESISTOR 1MΩ,1/16W
R325	NRSA63J-333N	RESISTOR 33KΩ,1/16W
R326	NRSA63J-473N	RESISTOR 47KΩ,1/16W
R327	NRSA63J-104N	RESISTOR 100KΩ,1/16W
R328	NRSA63J-273N	RESISTOR 27KΩ,1/16W
R329	NRSA63J-151N	RESISTOR 150Ω,1/16W
R330	NRSA63J-123N	RESISTOR 12KΩ,1/16W
R331	NRSA63J-100N	RESISTOR 10Ω,1/16W
R332	NRSA63J-272N	RESISTOR 2.7KΩ,1/16W
R333	NRSA63J-103N	RESISTOR 10KΩ,1/16W
R334	NRSA63J-101N	RESISTOR 100Ω,1/16W
R335	NVP1305-473N	V RESISTOR,BIAS LEVEL 47KΩ
R336	NRSA63J-0R0A	RESISTOR 0Ω,1/16W
R337	NRSA63K-8R2N	RESISTOR 8.2Ω,1/16W
R338	NRSA63J-333N	RESISTOR 33KΩ,1/16W
R339	NRSA63J-103N	RESISTOR 10KΩ,1/16W
R340	NRSA63J-562N	RESISTOR 5.6KΩ,1/16W
R341	NRSA63J-103N	RESISTOR 10KΩ,1/16W
R345	NRSA63J-103N	RESISTOR 10KΩ,1/16W
R346	NRSA63J-123N	RESISTOR 12KΩ,1/16W
R347	NRSA63J-563N	RESISTOR 56KΩ,1/16W

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
R348	NRSA63J-104N	RESISTOR	100KΩ,1/16W
R349	NRSA63J-101N	RESISTOR	100Ω,1/16W
R350	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
R352	NRSA63J-152N	RESISTOR	1.5KΩ,1/16W
R353	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
R354	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R355	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R356	NRSA63J-101N	RESISTOR	100Ω,1/16W
R357	NRSA63J-104N	RESISTOR	100KΩ,1/16W
R358	NRSA63J-101N	RESISTOR	100Ω,1/16W
R359	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
R360	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
R361	NRSA63J-101N	RESISTOR	100Ω,1/16W
R362	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R363	QRSA08J-680YN	RESISTOR	68Ω,1/10W
R364	QRSA08J-680YN	RESISTOR	68Ω,1/10W
B1	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
B2	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
B4	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
B5	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
B6	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
B7	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
B105	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
B107	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
B108	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
C1	QERF1CM-476	E CAPACITOR	47μF,16V
C2	NCB31EK-103A	CAPACITOR	0.01μF,25V
C3	QERF1HM-105	E CAPACITOR	1μF,50V
C5	NCS31HJ-101A	CAPACITOR	100PF,50V
C6	NCS31HJ-101A	CAPACITOR	100PF,50V
C7	NCB31EK-103A	CAPACITOR	0.01μF,25V
C8	QERF1EM-335	E CAPACITOR	3.3μF,25V
C9	QERF1HM-224	E CAPACITOR	0.22μF,50V
C12	NCB31EK-103A	CAPACITOR	0.01μF,25V
C13	NCB31HK-332A	CAPACITOR	0.0033μF,50V
C14	QCYA1EK-223	CAPACITOR	0.022μF,25V
C15	NCB31EK-103A	CAPACITOR	0.01μF,25V
C16	NCB31EK-103A	CAPACITOR	0.01μF,25V
C17	NCS31HJ-470A	CAPACITOR	47PF,50V
C18	NCS31HJ-330A	CAPACITOR	33PF,50V
C19	QERF1CM-106	E CAPACITOR	10μF,16V
C20	NCS31HJ-470A	CAPACITOR	47PF,50V
C21	QERF1CM-106	E CAPACITOR	10μF,16V
C22	QERF1CM-106	E CAPACITOR	10μF,16V
C23	NCS31HJ-390A	CAPACITOR	39PF,50V
C24	NCB31HK-331A	CAPACITOR	330PF,50V
C25	NCB31EK-103A	CAPACITOR	0.01μF,25V
C26	NCB31EK-103A	CAPACITOR	0.01μF,25V
C27	NCB31EK-103A	CAPACITOR	0.01μF,25V
C28	QERF1CM-476	E CAPACITOR	47μF,16V
C29	NCB31EK-103A	CAPACITOR	0.01μF,25V
C34	QERF1HM-474	E CAPACITOR	0.47μF,50V
C35	QERF1HM-105	E CAPACITOR	1μF,50V

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
C36	QERF1HM-105	E CAPACITOR	1μF,50V
C37	NCB31EK-103A	CAPACITOR	0.01μF,25V
C38	NCB31EK-103A	CAPACITOR	0.01μF,25V
C39	NCS31HJ-470A	CAPACITOR	47PF,50V
C40	NCS31HJ-220A	CAPACITOR	22PF,50V
C41	NCB31EK-103A	CAPACITOR	0.01μF,25V
C42	NCS31HJ-330A	CAPACITOR	33PF,50V
C43	NCS31HJ-221A	CAPACITOR	220PF,50V
C44	NCS31HJ-121A	CAPACITOR	120PF,50V
C45	QERF1CM-476	E CAPACITOR	47μF,16V
C46	NCB31EK-103A	CAPACITOR	0.01μF,25V
C47	NCB31EK-103A	CAPACITOR	0.01μF,25V
C48	QERF1CM-476	E CAPACITOR	47μF,16V
C49	NCS31HJ-120A	CAPACITOR	12PF,50V
C50	NCS31HJ-220A	CAPACITOR	22PF,50V
C51	NCS31HJ-181A	CAPACITOR	180PF,50V
C52	NCS31HJ-101A	CAPACITOR	100PF,50V
C53	NCS31HJ-560A	CAPACITOR	56PF,50V
C54	NCB31EK-103A	CAPACITOR	0.01μF,25V
C55	NCS31HJ-330A	CAPACITOR	33PF,50V
C56	NCS31HJ-151A	CAPACITOR	150PF,50V
C57	NCB31EK-103A	CAPACITOR	0.01μF,25V
C58	NCS31HJ-180A	CAPACITOR	18PF,50V
C60	QERF1CM-476	E CAPACITOR	47μF,16V
C61	QEE81AM-476	TANTAL CAPACITOR	47μF,10V
C67	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
C101	NCB31EK-103A	CAPACITOR	0.01μF,25V
C102	NCS31HJ-220A	CAPACITOR	22PF,50V
C103	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
C104	QERF1CM-476	E CAPACITOR	47μF,16V
C105	NCB31EK-103A	CAPACITOR	0.01μF,25V
C106	NCS31HJ-3R0A	CAPACITOR	3PF,50V
C107	NCS31HJ-221A	CAPACITOR	220PF,50V
C108	NCS31HJ-101A	CAPACITOR	100PF,50V
C109	QERF1HM-105	E CAPACITOR	1μF,50V
C110	NCB31EK-103A	CAPACITOR	0.01μF,25V
C111	NCB31EK-103A	CAPACITOR	0.01μF,25V
C112	NCR21CK-473A	CAPACITOR	0.047μF,16V
C114	NCB31EK-103A	CAPACITOR	0.01μF,25V
C115	QERF1HM-105	E CAPACITOR	1μF,50V
C116	NCB31HK-102A	CAPACITOR	0.001μF,50V
C117	QCYA1HK-333	CAPACITOR	0.033μF,50V
C118	QERF1HM-105	E CAPACITOR	1μF,50V
C119	QERF1HM-105	E CAPACITOR	1μF,50V
C120	QCYA1EK-223	CAPACITOR	0.022μF,25V
C121	NCR21CK-473A	CAPACITOR	0.047μF,16V
C122	NCS31HJ-6R0A	CAPACITOR	6PF,50V
C123	NCS31HJ-101A	CAPACITOR	100PF,50V
C124	NCS31HJ-121A	CAPACITOR	120PF,50V
C125	NCS31HJ-820A	CAPACITOR	82PF,50V
C126	NCS31HJ-100A	CAPACITOR	10PF,50V
C127	NCS31HJ-820A	CAPACITOR	82PF,50V
C128	NCB31HK-272A	CAPACITOR	0.0027μF,50V
C129	QCYA1HK-153	CAPACITOR	0.015μF,50V
C130	QCYA1HK-333	CAPACITOR	0.033μF,50V

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C131	NCS31HJ-151A	CAPACITOR	150PF,50V
C132	NCS31HJ-150A	CAPACITOR	15PF,50V
C133	NCS31HJ-151A	CAPACITOR	150PF,50V
C134	NCB31EK-103A	CAPACITOR	0.01μF,25V
C135	NCS31HJ-151A	CAPACITOR	150PF,50V
C142	NCB31EK-103A	CAPACITOR	0.01μF,25V
C143	NCB31EK-103A	CAPACITOR	0.01μF,25V
C144	NCB31EK-103A	CAPACITOR	0.01μF,25V
C301	QERF0JM-336	E CAPACITOR	33μF,6.3V
C302	QEEF0JM-475	TANTAL CAPACITOR	4.7μF,6.3V
C303	NCB31HK-681A	CAPACITOR	680PF,50V
C304	NCB31HK-332A	CAPACITOR	0.0033μF,50V
C305	QERF1HM-105	E CAPACITOR	1μF,50V
C306	NCS31HJ-331A	CAPACITOR	330PF,50V
C307	NCB31EK-103A	CAPACITOR	0.01μF,25V
C308	QERF0JM-107	E CAPACITOR	100μF,6.3V
C309	QERF0JM-476	E CAPACITOR	47μF,6.3V
C310	NCS31HJ-121A	CAPACITOR	120PF,50V
C311	NCS31HJ-150A	CAPACITOR	15PF,50V
C312	NCS31HJ-560A	CAPACITOR	56PF,50V
C313	NCT08CH-101A	CAPACITOR	100PF
C314	NCT08CH-101A	CAPACITOR	100PF
C315	NCT08CH-101A	CAPACITOR	100PF
C316	NCT08CH-101A	CAPACITOR	100PF
C317	QCF81CZ-105	CAPACITOR	1μF,16V
C318	NCB31HK-562A	CAPACITOR	0.0056μF,50V
C319	QERF1HM-104	E CAPACITOR	0.1μF,50V
C320	NCB31HK-222A	CAPACITOR	0.0022μF,50V
C321	NCB31HK-102A	CAPACITOR	0.001μF,50V
C322	QERF0JM-336	E CAPACITOR	33μF,6.3V
C323	QERF0JM-336	E CAPACITOR	33μF,6.3V
C324	QERF1EM-475	E CAPACITOR	4.7μF,25V
C325	QERF1CM-106	E CAPACITOR	10μF,16V
C326	QERF1HM-105	E CAPACITOR	1μF,50V
C327	NCB31HK-152A	CAPACITOR	0.0015μF,50V
C328	QCF81CZ-105	CAPACITOR	1μF,16V
C329	QERF0JM-476	E CAPACITOR	47μF,6.3V
C330	NCB31EK-103A	CAPACITOR	0.01μF,25V
C331	NCB31HK-222A	CAPACITOR	0.0022μF,50V
C332	NCB31HK-562A	CAPACITOR	0.0056μF,50V
C333	NCB31EK-103A	CAPACITOR	0.01μF,25V
C334	QERF1CM-106	E CAPACITOR	10μF,16V
C335	NCB31HK-102A	CAPACITOR	0.001μF,50V
C336	QFZ9011-333	M CAPACITOR	0.033μF
C337	NCS31HJ-561A	CAPACITOR	560PF,50V
C338	NCB31HK-392A	CAPACITOR	0.0039μF,50V
C339	QERF1CM-476	E CAPACITOR	47μF,16V
C341	QERF1CM-476	E CAPACITOR	47μF,16V
C342	QCYA1EK-104	CAPACITOR	0.1μF,25V
C343	QERF0JM-336	E CAPACITOR	33μF,6.3V
C344	QERF1HM-105	E CAPACITOR	1μF,50V
C345	QERF0JM-107	E CAPACITOR	100μF,6.3V
C346	QCYA1HK-273	CAPACITOR	0.027μF,50V
C347	QERF1AM-336	E CAPACITOR	33μF,10V
C348	QERF0JM-336	E CAPACITOR	33μF,6.3V
C349	NCB31HK-102A	CAPACITOR	0.001μF,50V

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
L1	YU40589-470J	COIL	47μH
L2	PU59152-100J	COIL	10μH
L3	PU59152-560J	COIL	56μH
L4	PU59152-121J	COIL	120μH
L7	YU40589-470J	COIL	47μH
L8	YU40589-470J	COIL	47μH
L9	PU59152-121J	COIL	120μH
L10	PU59152-390J	COIL	39μH
L11	PU59152-220J	COIL	22μH
L12	YU40589-271K	COIL	270μH
L13	PU59152-680J	COIL	68μH
L14	YU40589-470J	COIL	47μH
L15	PU59152-220J	COIL	22μH
L16	YU40589-331K	COIL	330μH
L17	PU59152-100J	COIL	10μH
L18	PU59152-180J	COIL	18μH
L19	PU59152-560J	COIL	56μH
L20	PU59152-680J	COIL	68μH
L21	PU59152-101J	COIL	100μH
L101	PU59152-470J	COIL	47μH
L102	PU59152-2R2J	COIL	2.2μH
L103	YU40589-470J	COIL	47μH
L104	PU59152-390J	COIL	39μH
L105	YU40589-102K	COIL	1mH
L106	YU40589-271K	COIL	270μH
L107	YU40941-682	COIL	6.8mH
L108	YU40589-331K	COIL	330μH
L109	PU59152-470J	COIL	47μH
L110	PU59152-181J	COIL	180μH
L111	PU59152-150J	COIL	15μH
L301	YU40589-470K	COIL	47μH
L302	YU40589-470K	COIL	47μH
L303	PELN0415	EQUALIZER	
⚠ L304	YU41716	OSC COIL	
EQ1	PU58634	EQUALIZER	
LPF1	PU58628	LOW PASS FILTER	
LPF2	YU41668	LOW PASS FILTER	
BPF101	YU40229	BAND PASS FILTER	
	or YU40507	BAND PASS FILTER	
BPF102	PU58633	BAND PASS FILTER	
DL101	PEVB0385	COMB FILTER	
⚠ X101	YU40644	CRYSTAL RESONATOR	
TP1	YU40581	TEST PIN,REC FM	
TP2	YU40581	TEST PIN,DEMOD OUT	
TP3	YU40581	TEST PIN,YNR INPUT	

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	TP4	YU40581	TEST PIN,EMPHASIS	
	TP6	YU40581	TEST PIN,PB COLOR	
	TP8	YU40581	TEST PIN,VIDEO OUT	
	TP11	YU40581	TEST PIN,V FF	
	TP13	YU40581	TEST PIN,REC COLOR	
	TP15	YU40581	TEST PIN,Y OUT	
	TP16	YU40581	TEST PIN,GND	
	TP301	YU40581	TEST PIN,AUDIO BIAS +	
	TP302	YU40581	TEST PIN,AUDIO BIAS −	
	TP303	YU40581	TEST PIN,AUDIO OUT	
	CN1	YU41355-8	CAP HOUSING	
	CN2	YU41356-5	CAP HOUSING	
	CN3	YU41359-30	CAP HOUSING,(BOARD TO BOARD)	
	CN4	YU41492-22	CAP HOUSING,(BOARD TO BOARD)	
	CN5	YU41359-6	CAP HOUSING,(BOARD TO BOARD)	
	CN6	YU41354-8	CAP HOUSING	
	CN7	YU41356-5	CAP HOUSING	

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JACK BOARD ASSEMBLY <03>

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	PWBA	YB20345C	JACK BOARD ASSY	
	D1	ERA81-004	DIODE	
	R1	QRD161J-750	RESISTOR	75Ω,1/6W
⚠	R7	PU60466-R023	FUSIBLE RESISTOR	
	C1	QCBB1HK-102	CAPACITOR	0.001μF,50V
	C2	QCBB1HK-102	CAPACITOR	0.001μF,50V
	C4	QER40GM-477	E CAPACITOR	470μF,4.0V
	SPC1	YU41684	SPACER	
	WR1	ML-Y00506A	JACK BOARD WIRE,FOR CN3	
	CN1	YU41359-22-R	CAP HOUSING,(BOARD TO BOARD)	
	CN2	YU40096-3	CAP HOUSING	
	CN3	YU40096-4	CAP HOUSING	
	CN4	YU40096-3	CAP HOUSING	
	CN5	YU40683-6	CAP HOUSING,(BOARD TO BOARD)	

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SW BOARD ASSEMBLY <04>

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	PWBA	YB20388C	SW BOARD ASSY
	SW2	YU41561	SLIDE SWITCH,DUB SW
	CN1	YU40682-6	CAP HOUSING,(BOARD TO BOARD)
	KNB	YQ41810-2-5	KNOB

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MIC JACK/TRIGGER BOARD ASSEMBLY <05>

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	PWBA	YB20393B1	MIC JACK/TRIGGER BOARD ASSY	
	R1	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	C3	YU40688-476N	E CAPACITOR	47μF
	SW1	PU59843	TRIGGER SW	
	SW2	SPSF2005Z	SCREW	
	HD1	YQ41869-1-2	PWB HOLDER	
	J1	YU41413	MIC JACK	
	SLD1	YQ42003	SHIELD PLATE	
	SLD2	YQ42017-1-1	SHIELD PLATE	
	WR1	ML-Y00548A	MIC JACK/TRG.WIRE,FOR CN1	
	CN1	PU58654-10	CAP HOUSING	

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MIC AMP BOARD ASSEMBLY <06>

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
PWBA	YB20346B-04	MIC BOARD ASSY	
IC1	BA3308F	IC	
Q1	2SC4081(RS)	TRANSISTOR	
Q2	2SC4081(RS)	TRANSISTOR	
Q3	DTC143TU	TRANSISTOR	
Q4	DTC143XU	TRANSISTOR	
D1	IMN10	DIODE	
D2	DAP202U	DIODE	
R3	NRSA63J-101N	RESISTOR	100Ω,1/16W
R4	NRSA63J-221N	RESISTOR	220Ω,1/16W
R5	NRSA63J-221N	RESISTOR	220Ω,1/16W
R6	NRSA63J-101N	RESISTOR	100Ω,1/16W
R7	NRSA63J-563N	RESISTOR	56KΩ,1/16W
R8	NRSA63J-563N	RESISTOR	56KΩ,1/16W
R10	NRSA63J-105N	RESISTOR	1MΩ,1/16W
R11	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R12	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R13	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R14	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R15	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R16	NRSA63J-333N	RESISTOR	33KΩ,1/16W
R17	NRSA63J-333N	RESISTOR	33KΩ,1/16W
R18	NRSA63J-333N	RESISTOR	33KΩ,1/16W
R19	NRSA63J-563N	RESISTOR	56KΩ,1/16W
R20	NRSA63J-393N	RESISTOR	39KΩ,1/16W
R21	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R22	NRSA63J-823N	RESISTOR	82KΩ,1/16W
R23	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R24	QRSA08J-221YN	RESISTOR	220Ω,1/10W
R25	QRSA08J-221YN	RESISTOR	220Ω,1/10W
R26	QRSA08J-100YN	RESISTOR	10Ω,1/10W
R27	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
C2	NCS31HJ-101A	CAPACITOR	100PF,50V
C3	NEN11HM-105N	NP E CAPACITOR	1μF,50V
C4	NEE21AM-106R	TANTAL CAPACITOR	10μF,10V
C5	NEE21AM-106R	TANTAL CAPACITOR	10μF,10V
C6	NEN11HM-105N	NP E CAPACITOR	1μF,50V
C7	NCS31HJ-101A	CAPACITOR	100PF,50V
C8	NCS31HJ-121A	CAPACITOR	120PF,50V
C9	NCS31HJ-121A	CAPACITOR	120PF,50V
C11	NEH11EM-475N	E CAPACITOR	4.7μF,25V
C12	NEE20JM-225R	TANTAL CAPACITOR	2.2μF,6.3V
C13	NEE20JM-225R	TANTAL CAPACITOR	2.2μF,6.3V
C14	YU40688-476N	E CAPACITOR	47μF
C15	NCB31HK-102A	CAPACITOR	0.001μF,50V
C16	NCB31HK-102A	CAPACITOR	0.001μF,50V
SLD1	YQ42002-1-1	SHIELD PLATE	
SPC1	YQM30029-12	SPACER	
WR1	ML-Y00569B	MIC AMP BOARD WIRE,FOR CN1	
CN1	YU40096-5	CONNECTOR	
CN2	YU40096-4	CONNECTOR	

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SENSOR BOARD ASSEMBLY <08>

REF No.	PART No.	PART NAME, DESCRIPTION
PWBA	YQ30893A	SENSER BOARD ASSY

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PRE/REC AMP <09>

REF No.	PART No.	PART NAME, DESCRIPTION
PWBA	18VT17	PRE/REC AMP

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END SENSOR BKT ASSEMBLY <11>

REF No.	PART No.	PART NAME, DESCRIPTION
PWBA	YQ41594A-6	END SENSOR BKT ASSY
BKT1	YQ30614-1-4	END SENSER BKT

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VIDEO BOARD ASSEMBLY <21>

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
PWBA	YB20435A-01	VIDEO BOARD ASSY	
IC101	UPC2375GB	IC	
IC102	MSC7002GS-VK	IC	
IC103	AN2271FAS	IC	
IC104	MC8180B	IC	
IC105	TK10682M	IC	
IC106	AK9812	IC	
IC107	NJM2249M	IC	
IC108	MN4053BS	IC	
IC109	TC4S01F	IC	
IC110	TC4S69F	IC	
Q101	2SC4655	TRANSISTOR	
Q102	2SC4655	TRANSISTOR	
Q103	2SC4655	TRANSISTOR	
Q104	XP5501	TRANSISTOR	
Q105	2SC4655	TRANSISTOR	
Q106	XP5501	TRANSISTOR	
Q107	XP5501	TRANSISTOR	
Q108	XP5501	TRANSISTOR	
Q109	2SA1790	TRANSISTOR	
Q111	2SC4655	TRANSISTOR	
Q112	XP5501	TRANSISTOR	
Q113	2SC4655	TRANSISTOR	
Q114	2SC4655	TRANSISTOR	
Q115	2SC4655	TRANSISTOR	
Q116	2SC4655	TRANSISTOR	
Q121	2SC4655	TRANSISTOR	
D101	MA110	DIODE	
D102	MA110	DIODE	
D103	RB715F	DIODE	
D104	MA110	DIODE	
D105	MA133	DIODE	
D107	MA133	DIODE	
D108	MA133	DIODE	
D109	MA133	DIODE	
R1	NRSA63J-273N	RESISTOR	27KΩ,1/16W
R2	NRSA63J-123N	RESISTOR	12KΩ,1/16W
R3	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R4	NVP1201-223N	V RESISTOR,B GAIN	22KΩ,1/2W
R5	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R6	NVP1201-223N	V RESISTOR,R GAIN	22KΩ,1/2W
R8	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R9	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R11	NRSA63J-123N	RESISTOR	12KΩ,1/16W
R12	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R13	NRSA63J-223N	RESISTOR	22KΩ,1/16W
R14	NRSA63J-273N	RESISTOR	27KΩ,1/16W
R15	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R16	NRSA63J-223N	RESISTOR	22KΩ,1/16W
R17	NRSA63J-273N	RESISTOR	27KΩ,1/16W
R18	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R19	NRSA63J-223N	RESISTOR	22KΩ,1/16W
R20	NRSA63J-273N	RESISTOR	27KΩ,1/16W
R21	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R22	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R23	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R24	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R25	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R26	NRSA63J-273N	RESISTOR	27KΩ,1/16W
R27	NRSA63J-153N	RESISTOR	15KΩ,1/16W
R28	NRSA63J-273N	RESISTOR	27KΩ,1/16W
R29	NRSA63J-153N	RESISTOR	15KΩ,1/16W
R30	NRSA63J-682N	RESISTOR	6.8KΩ,1/16W
R31	NRSA63J-123N	RESISTOR	12KΩ,1/16W
R32	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R33	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R34	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R35	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R36	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R37	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R38	NRSA63J-393N	RESISTOR	39KΩ,1/16W
R39	NRSA63J-393N	RESISTOR	39KΩ,1/16W
R40	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R41	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R42	NRSA63J-182N	RESISTOR	1.8KΩ,1/16W
R43	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R44	NRSA63J-113N	RESISTOR	11KΩ,1/16W
R45	NRSA63J-393N	RESISTOR	39KΩ,1/16W
R46	NRSA63J-392N	RESISTOR	3.9KΩ,1/16W
R48	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R49	NRSA63J-123N	RESISTOR	12KΩ,1/16W
R50	NRSA63J-273N	RESISTOR	27KΩ,1/16W
R51	NRSA63J-563N	RESISTOR	56KΩ,1/16W
R52	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R54	NRSA63J-225N	RESISTOR	2.2MΩ,1/16W
R55	NVP1201-223N	V RESISTOR,COLOR DIF BALANCE	22KΩ,1/2W
R56	NRSA63J-225N	RESISTOR	2.2MΩ,1/16W
R57	NVP1201-223N	V RESISTOR,COLOR OFFSET	22KΩ,1/2W
R58	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
R59	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R60	NRSA63J-153N	RESISTOR	15KΩ,1/16W
R61	NRSA63J-822N	RESISTOR	8.2KΩ,1/16W
R62	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R63	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R64	NRSA63J-153N	RESISTOR	15KΩ,1/16W
R65	NRSA63J-123N	RESISTOR	12KΩ,1/16W
R66	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R68	NRSA63J-153N	RESISTOR	15KΩ,1/16W
R69	NRSA63J-822N	RESISTOR	8.2KΩ,1/16W
R70	NRSA63J-333N	RESISTOR	33KΩ,1/16W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R71	NRSA63J-682N	RESISTOR	6.8KΩ,1/16W
R72	NRSA63J-273N	RESISTOR	27KΩ,1/16W
R73	NRSA63J-183N	RESISTOR	18KΩ,1/16W
R74	NRSA63J-153N	RESISTOR	15KΩ,1/16W
R75	NRSA63J-822N	RESISTOR	8.2KΩ,1/16W
R76	NRSA63J-153N	RESISTOR	15KΩ,1/16W
R77	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R79	NRSA63J-223N	RESISTOR	22KΩ,1/16W
R80	NRSA63J-123N	RESISTOR	12KΩ,1/16W
R81	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R82	NRSA63J-124N	RESISTOR	120KΩ,1/16W
R83	NRSA63J-153N	RESISTOR	15KΩ,1/16W
R84	NRSA63J-682N	RESISTOR	6.8KΩ,1/16W
R85	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R87	NRSA63J-153N	RESISTOR	15KΩ,1/16W
R89	NRSA63J-153N	RESISTOR	15KΩ,1/16W
R90	NRSA63J-133N	RESISTOR	13KΩ,1/16W
R91	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R92	NRSA63J-225N	RESISTOR	2.2MΩ,1/16W
R93	NVP1201-223N	V RESISTOR,COLOR DIF OFFSET	22KΩ,1/2W
R94	NRSA63J-104N	RESISTOR	100KΩ,1/16W
R95	NRSA63J-153N	RESISTOR	15KΩ,1/16W
R96	NVP1201-472N	V RESISTOR,WHITE CLIP LEVEL	4.7KΩ,1/2W
R97	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R99	NVP1201-104N	V RESISTOR,R-Y SC BAL	100KΩ,1/2W
R100	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R101	NRSA63J-101N	RESISTOR	100Ω,1/16W
R102	NVP1201-104N	V RESISTOR,B-Y SC BAL	100KΩ,1/2W
R103	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R104	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R105	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R106	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R107	NRSA63J-751N	RESISTOR	750Ω,1/16W
R108	NRSA63J-182N	RESISTOR	1.8KΩ,1/16W
R109	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R110	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R111	NRSA63J-100N	RESISTOR	10Ω,1/16W
R112	NRSA63J-393N	RESISTOR	39KΩ,1/16W
R113	NRSA63J-183N	RESISTOR	18KΩ,1/16W
R114	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R116	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R117	NRSA63J-223N	RESISTOR	22KΩ,1/16W
R118	NRSA63J-223N	RESISTOR	22KΩ,1/16W
R119	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R120	NRSA63J-273N	RESISTOR	27KΩ,1/16W
R121	NRSA63J-153N	RESISTOR	15KΩ,1/16W
R122	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R123	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R124	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R125	NRSA63J-393N	RESISTOR	39KΩ,1/16W
R126	NRSA63J-183N	RESISTOR	18KΩ,1/16W
R127	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R128	NVP1201-472N	V RESISTOR,SYNC LEVEL	4.7KΩ,1/2W
R129	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R130	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R131	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R132	NRSA63J-751N	RESISTOR	750Ω,1/16W
R135	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R136	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R137	NRSA63J-100N	RESISTOR	10Ω,1/16W
R138	NRSA63J-182N	RESISTOR	1.8KΩ,1/16W
R139	NRSA63J-391N	RESISTOR	390Ω,1/16W
R141	NRSA63J-182N	RESISTOR	1.8KΩ,1/16W
R142	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R143	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R144	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R145	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R146	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R147	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
R148	NRSA63J-202N	RESISTOR	2KΩ,1/16W
R149	NVP1201-472N	V RESISTOR,VF 8V	4.7KΩ,1/2W
R150	NRSA63J-912N	RESISTOR	9.1KΩ,1/16W
R151	NRSA63J-273N	RESISTOR	27KΩ,1/16W
R152	NRSA63J-683N	RESISTOR	68KΩ,1/16W
R153	NRSA63J-272N	RESISTOR	2.7KΩ,1/16W
R154	NRSA63J-272N	RESISTOR	2.7KΩ,1/16W
R155	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R156	NRSA63J-303N	RESISTOR	30KΩ,1/16W
R157	NRSA63J-393N	RESISTOR	39KΩ,1/16W
R159	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R161	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R164	NRSA63J-680N	RESISTOR	68Ω,1/16W
R165	NRSA63J-681N	RESISTOR	680Ω,1/16W
R166	NRSA63J-682N	RESISTOR	6.8KΩ,1/16W
R167	NRSA63J-681N	RESISTOR	680Ω,1/16W
R168	NRSA63J-682N	RESISTOR	6.8KΩ,1/16W
R169	NRSA63J-272N	RESISTOR	2.7KΩ,1/16W
R170	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R171	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R172	NRSA63J-154N	RESISTOR	150KΩ,1/16W
R173	NRSA63J-182N	RESISTOR	1.8KΩ,1/16W
R174	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R176	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R177	NVP1201-223N	V RESISTOR,NOT USE	22KΩ,1/2W
R178	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R179	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R180	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R183	NRSA63J-331N	RESISTOR	330Ω,1/16W
R184	NRSA63J-123N	RESISTOR	12KΩ,1/16W
R185	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R186	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R187	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R199	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R200	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R650	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
R651	NRSA63J-182N	RESISTOR	1.8KΩ,1/16W
R652	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R654	NRSA63J-0R0A	RESISTOR	0Ω,1/16W

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	C1	NEE21AM-106R	TANTAL CAPACITOR	10μF,10V
	C2	NEE21AM-336R	TANTAL CAPACITOR	33μF,10V
	C4	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C9	QCYA1EK-104	CAPACITOR	0.1μF,25V
	C10	QCYA1EK-104	CAPACITOR	0.1μF,25V
	C14	QCYA1EK-104	CAPACITOR	0.1μF,25V
	C15	NEE20GM-106R	TANTAL CAPACITOR	10μF,4.0V
	C16	QCYA1EK-104	CAPACITOR	0.1μF,25V
	C19	QCYA1EK-104	CAPACITOR	0.1μF,25V
	C20	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C21	QCYA1EK-104	CAPACITOR	0.1μF,25V
	C22	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C23	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C24	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C25	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C26	QCYA1EK-104	CAPACITOR	0.1μF,25V
	C27	NCB31EK-223A	CAPACITOR	0.022μF,25V
	C28	QCYA1EK-104	CAPACITOR	0.1μF,25V
	C29	NCB31EK-223A	CAPACITOR	0.022μF,25V
	C30	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C31	NEE21AM-106R	TANTAL CAPACITOR	10μF,10V
	C32	NEE21AM-106R	TANTAL CAPACITOR	10μF,10V
	C33	NEE21AM-476R	TANTAL CAPACITOR	47μF,10V
	C34	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C35	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C36	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C37	NEE21VM-474R	TANTAL CAPACITOR	0.47μF,35V
	C38	NEE21VM-474R	TANTAL CAPACITOR	0.47μF,35V
	C39	NCB31EK-223A	CAPACITOR	0.022μF,25V
	C44	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C45	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C46	NEE21AM-106R	TANTAL CAPACITOR	10μF,10V
	C47	NEE21AM-106R	TANTAL CAPACITOR	10μF,10V
	C48	NEE21CM-685R	TANTAL CAPACITOR	6.8μF,16V
	C49	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C50	QCYA1EK-473	CAPACITOR	0.047μF,25V
	C51	QCYA1EK-473	CAPACITOR	0.047μF,25V
	C52	QCYA1EK-473	CAPACITOR	0.047μF,25V
	C53	QCYA1EK-473	CAPACITOR	0.047μF,25V
	C55	QCYA1EK-473	CAPACITOR	0.047μF,25V
	C56	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C60	QCYA1EK-473	CAPACITOR	0.047μF,25V
	C62	QCYA1EK-473	CAPACITOR	0.047μF,25V
	C64	QCYA1EK-104	CAPACITOR	0.1μF,25V
	C65	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C67	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C68	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C69	QCYA1EK-473	CAPACITOR	0.047μF,25V
	C70	QCYA1EK-473	CAPACITOR	0.047μF,25V
	C71	QCYA1EK-473	CAPACITOR	0.047μF,25V
	C72	QCYA1EK-473	CAPACITOR	0.047μF,25V
	C73	NEE21CM-685R	TANTAL CAPACITOR	6.8μF,16V
	C74	NEE21AM-106R	TANTAL CAPACITOR	10μF,10V
	C75	NEE21AM-106R	TANTAL CAPACITOR	10μF,10V
	C77	NCF31CZ-104A	CAPACITOR	0.1μF,16V

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	C78	QCYA1EK-473	CAPACITOR	0.047μF,25V
	C79	QCYA1EK-473	CAPACITOR	0.047μF,25V
	C80	QCYA1EK-473	CAPACITOR	0.047μF,25V
	C81	QCYA1EK-473	CAPACITOR	0.047μF,25V
	C82	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C83	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C84	QCYA1EK-473	CAPACITOR	0.047μF,25V
	C85	QCYA1EK-473	CAPACITOR	0.047μF,25V
	C86	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C87	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C89	QCYA1EK-473	CAPACITOR	0.047μF,25V
	C90	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C91	NEE21AM-106R	TANTAL CAPACITOR	10μF,10V
	C92	NEE21AM-106R	TANTAL CAPACITOR	10μF,10V
	C93	NEE21AM-106R	TANTAL CAPACITOR	10μF,10V
	C94	QCYA1EK-473	CAPACITOR	0.047μF,25V
	C95	QCYA1EK-473	CAPACITOR	0.047μF,25V
	C96	QCYA1EK-473	CAPACITOR	0.047μF,25V
	C97	QCYA1EK-473	CAPACITOR	0.047μF,25V
	C99	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C100	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C103	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C104	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C107	NCT07CH-5R0A	CAPACITOR	5PF
	C108	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C109	QCYA1EK-473	CAPACITOR	0.047μF,25V
	C110	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C114	NEE21AM-475R	TANTAL CAPACITOR	4.7μF,10V
	C115	QCYA1EK-473	CAPACITOR	0.047μF,25V
	C116	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C117	QCYA1EK-473	CAPACITOR	0.047μF,25V
	C119	QCYA1EK-473	CAPACITOR	0.047μF,25V
	C120	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C121	QCFA1CZ-105	CAPACITOR	1μF,16V
	C125	QCFA1CZ-105	CAPACITOR	1μF,16V
	C126	NEE21CM-685R	TANTAL CAPACITOR	6.8μF,16V
	C127	NEE21AM-106R	TANTAL CAPACITOR	10μF,10V
	C128	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C129	NEE21AM-106R	TANTAL CAPACITOR	10μF,10V
	C130	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C131	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C132	NEE21AM-106R	TANTAL CAPACITOR	10μF,10V
	C133	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C134	NEE21AM-106R	TANTAL CAPACITOR	10μF,10V
	C135	NEE21AM-106R	TANTAL CAPACITOR	10μF,10V
	C136	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C137	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C138	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C139	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C140	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C141	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C142	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C143	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C144	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C145	NCF31CZ-104A	CAPACITOR	0.1μF,16V

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C146	NCF31CZ-104A	CAPACITOR	0.1µF,16V
C147	NCF31CZ-104A	CAPACITOR	0.1µF,16V
C148	NCF31CZ-104A	CAPACITOR	0.1µF,16V
C149	NCF31CZ-104A	CAPACITOR	0.1µF,16V
C150	NEE21AM-106R	TANTAL CAPACITOR	10µF,10V
C151	NCF31CZ-104A	CAPACITOR	0.1µF,16V
C152	NCT06CH-560A	CAPACITOR	56PF
C153	NCT06CH-680A	CAPACITOR	68PF
C154	NCT06CH-101A	CAPACITOR	100PF
C155	NCT07CH-101A	CAPACITOR	100PF
C156	NCF31CZ-104A	CAPACITOR	0.1µF,16V
L101	YU40740-220K	COIL	22µH
	or YU41135-220K	COIL	22µH
L102	YU40740-220K	COIL	22µH
	or YU41135-220K	COIL	22µH
L103	YU40740-220K	COIL	22µH
	or YU41135-220K	COIL	22µH
L104	YU40740-220K	COIL	22µH
	or YU41135-220K	COIL	22µH
L105	YU40740-220K	COIL	22µH
	or YU41135-220K	COIL	22µH
L106	YU40740-470K	COIL	47µH
	or YU41135-470	COIL	47µH
L107	YU40740-470K	COIL	47µH
	or YU41135-470	COIL	47µH
L108	YU40740-470K	COIL	47µH
	or YU41135-470	COIL	47µH
L109	YU40740-470K	COIL	47µH
	or YU41135-470	COIL	47µH
L110	YU40740-220K	COIL	22µH
	or YU41135-220K	COIL	22µH
L111	YU40740-220K	COIL	22µH
	or YU41135-220K	COIL	22µH
L112	YU40740-220K	COIL	22µH
	or YU41135-220K	COIL	22µH
L113	YU40740-220K	COIL	22µH
	or YU41135-220K	COIL	22µH
L114	YU40740-220K	COIL	22µH
	or YU41135-220K	COIL	22µH
L115	YU40740-220K	COIL	22µH
	or YU41135-220K	COIL	22µH
L116	YU40740-220K	COIL	22µH
	or YU41135-220K	COIL	22µH
TRAP1	YU41655	TRAP,TRAP101	
TRAP2	YU41656	TRAP,TRAP102	
TRAP3	YU41325-7R2	TRAP,TRAP103	
EQ101	YU41660	EQUALIZER	
LPF101	YU41661	LOW PASS FILTER	
LPF102	PELN0355	LOW PASS FILTER	
	or PELN0356	LOW PASS FILTER	
LPF103	PELN0355	LOW PASS FILTER	
	or PELN0356	LOW PASS FILTER	

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION
BPF101	YU41497	BAND PASS FILTER
DL101	YU41657	DELAY LINE
DL102	YU41657	DELAY LINE
DL103	PELN0352	FILTER
J101	ML-Y00255A	LUG WIRE 2
TP101	YU40581	TEST PIN,GND
TP102	YU40581	TEST PIN,AW R-Y
CN101	YU40682-12	CAP HOUSING,(BOARD TO BOARD)
CN102	YU40682-22	CAP HOUSING,(BOARD TO BOARD)
CN103	YU40682-22	CAP HOUSING,(BOARD TO BOARD)
CN104	YU40682-22	CAP HOUSING,(BOARD TO BOARD)
CN105	YU40682-12	CAP HOUSING,(BOARD TO BOARD)
CN106	YU41356-3	CAP HOUSING
CN107	YU41355-8	CAP HOUSING
CN108	YU41356-4	CAP HOUSING

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IMAGER BOARD ASSEMBLY <22>

PWBA	YB20427A-02	IMAGER BOARD ASSY	
IC202	UPD9431AGK	IC	
IC203	CXD1250N	IC	
IC205	UPC2387GR	IC	
IC207	TC4S69F	IC	
Q201	2SK663	FE TRANSISTOR	
Q202	XP5601	TRANSISTOR	
Q203	XP5601	TRANSISTOR	
Q204	2SC4176	TRANSISTOR	
Q205	2SA1610	TRANSISTOR	
D201	MA110	DIODE	
D202	MA110	DIODE	
D203	MA110	DIODE	
D204	MA8240	DIODE	
D206	MA110	DIODE	
D208	MA8240	DIODE	
R201	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R202	NRSA63J-105N	RESISTOR	1MΩ,1/16W
R203	NRSA63J-471N	RESISTOR	470Ω,1/16W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R204	NRSA63J-471N	RESISTOR	470Ω,1/16W
R205	NRSA63J-333N	RESISTOR	33KΩ,1/16W
R206	NRSA63J-100N	RESISTOR	10Ω,1/16W
R207	NRSA63J-100N	RESISTOR	10Ω,1/16W
R208	NRSA63J-821N	RESISTOR	820Ω,1/16W
R210	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R211	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R212	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R213	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R214	NRSA63J-100N	RESISTOR	10Ω,1/16W
R215	NRSA63J-393N	RESISTOR	39KΩ,1/16W
R216	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R217	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R218	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R219	NVP1201-104N	V RESISTOR,V SUB	100KΩ,1/2W
R220	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R221	NRSA63J-104N	RESISTOR	100KΩ,1/16W
R222	NRSA63J-270N	RESISTOR	27Ω,1/16W
R223	NRSA63J-270N	RESISTOR	27Ω,1/16W
R224	NRSA63J-184N	RESISTOR	180KΩ,1/16W
R225	NRSA63J-101N	RESISTOR	100Ω,1/16W
R226	NRSA63J-272N	RESISTOR	2.7KΩ,1/16W
R227	NRSA63J-273N	RESISTOR	27KΩ,1/16W
R228	NRSA63J-681N	RESISTOR	680Ω,1/16W
R229	NRSA63J-270N	RESISTOR	27Ω,1/16W
R230	NRSA63J-220N	RESISTOR	22Ω,1/16W
R231	NRSA63J-220N	RESISTOR	22Ω,1/16W
R232	NRSA63J-474N	RESISTOR	470KΩ,1/16W
R236	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R237	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R240	NVP1201-101N	V RESISTOR,CDS CANCEL	100Ω,1/2W
R244	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R245	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R246	NRSA63J-101N	RESISTOR	100Ω,1/16W
R248	NRSA63J-101N	RESISTOR	100Ω,1/16W
R249	NRSA63J-101N	RESISTOR	100Ω,1/16W
R250	NRSA63J-101N	RESISTOR	100Ω,1/16W
R251	NRSA63J-101N	RESISTOR	100Ω,1/16W
R252	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R253	NRSA63J-101N	RESISTOR	100Ω,1/16W
R254	NRSA63J-101N	RESISTOR	100Ω,1/16W
R255	NRSA63J-101N	RESISTOR	100Ω,1/16W
R256	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R257	NRSA63J-121N	RESISTOR	120Ω,1/16W
R258	NRSA63J-101N	RESISTOR	100Ω,1/16W
R259	NRSA63J-101N	RESISTOR	100Ω,1/16W
R260	NRSA63J-101N	RESISTOR	100Ω,1/16W
R261	NRSA63J-101N	RESISTOR	100Ω,1/16W
C201	NCT07CH-180A	CAPACITOR	18PF
C202	NCT06CH-4R0A	CAPACITOR	4PF
C203	PU59867-100X	TRIMMER CAPACITOR,OSC FREQ	10PF
C204	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C205	NEE21AM-476R	TANTAL CAPACITOR	47μF,10V
C206	NCF31CZ-104A	CAPACITOR	0.1μF,16V

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C207	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C208	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C209	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C210	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C211	QCFA1CZ-105	CAPACITOR	1μF,16V
C212	QCFA1CZ-105	CAPACITOR	1μF,16V
C213	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C214	NEE21CM-685R	TANTAL CAPACITOR	6.8μF,16V
C215	QCFA1CZ-105	CAPACITOR	1μF,16V
C216	NEE21VM-684R	TANTAL CAPACITOR	0.68μF,35V
C217	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C218	NEE21EM-105R	TANTAL CAPACITOR	1μF,25V
C219	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C220	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C221	NEE21EM-685R	TANTAL CAPACITOR	6.8μF,25V
C222	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C223	QCFA1CZ-105	CAPACITOR	1μF,16V
C224	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C225	NEE21EM-685R	TANTAL CAPACITOR	6.8μF,25V
C226	QCFA1CZ-105	CAPACITOR	1μF,16V
C227	NCT07CH-470A	CAPACITOR	47PF
C228	NCT07CH-470A	CAPACITOR	47PF
C235	NEE21AM-106R	TANTAL CAPACITOR	10μF,10V
C236	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C237	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C238	QCYA1EK-104	CAPACITOR	0.1μF,25V
C239	QCYA1EK-104	CAPACITOR	0.1μF,25V
C240	NEE21AM-106R	TANTAL CAPACITOR	10μF,10V
C242	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C243	NEE21AM-106R	TANTAL CAPACITOR	10μF,10V
C244	NEE20GM-106R	TANTAL CAPACITOR	10μF,4.0V
C245	QCFA1CZ-105	CAPACITOR	1μF,16V
C246	QCY81EK-104ZLM	CAPACITOR	0.1μF,25V
	or QCF81HZ-104ZL	CAPACITOR	0.1μF,50V
C253	NCF31CZ-104A	CAPACITOR	0.1μF,16V
L201	YU40740-220K	COIL	22μH
	or YU41135-220K	COIL	22μH
L202	YU40740-220K	COIL	22μH
	or YU41135-220K	COIL	22μH
L204	YU40740-220K	COIL	22μH
	or YU41135-220K	COIL	22μH
L206	YU40740-220K	COIL	22μH
	or YU41135-220K	COIL	22μH
L207	YU40740-220K	COIL	22μH
	or YU41135-220K	COIL	22μH
L208	YU40740-220K	COIL	22μH
	or YU41135-220K	COIL	22μH
L210	YU40740-220K	COIL	22μH
	or YU41135-220K	COIL	22μH
⚠ X201	YU40468	CRYSTAL RESONATOR	

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION
TP201	YU40581	TEST PIN,CDS CLOCK
TP202	YU40581	TEST PIN, V.SUB
TP203	YU40581	TEST PIN, GND
CN201	PU58655-3	CONNECTOR
CN202	PU58655-10	CONNECTOR
CN203	YU40684-16	CAP HOUSING,(BOARD TO BOARD)
CN204	YU40684-12	CAP HOUSING,(BOARD TO BOARD)
CN205	YU40684-22	CAP HOUSING,(BOARD TO BOARD)
⚠ CP201	ICP-F15	CIRCUIT PROTECTOR

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CTL BOARD ASSEMBLY <23>

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
PWBA	YB20385D-01	CTL BOARD ASSY	
IC301	M37413E6-105FP	IC	
IC302	UPD6451AGT-805	IC	
IC303	BU5736KS	IC	
IC304	M5M5256BFP-L	IC	
	or SRM20256LM	IC	
	or UPD43256AGU	IC	
IC305	LM358DB	IC	
IC306	S-8051HN-CD	IC	
IC307	S-81250HG-RD	IC	
IC308	MN12821(QR)	IC	
IC309	RH5VA26A	IC	
IC310	MM1028-BF	IC	
IC311	SN74HC08DB	IC	
IC312	SN74HC04DB	IC	
IC313	TC7S04F	IC	
IC314	TC7S04F	IC	
IC317	HD74HC165FP	IC	
	or MB74HC165PF	IC	
IC318	S-8054HN-CB	IC	
IC319	TC7S04F	IC	
Q301	2SB1462(QR)	TRANSISTOR	
Q302	2SB1462(QR)	TRANSISTOR	
Q303	UN9213	TRANSISTOR	
Q304	2SC3936(C)	TRANSISTOR	
Q305	2SC4655	TRANSISTOR	
D301	1SV223	DIODE	
D302	RB715F	DIODE	
⚠ D303	MA704	DIODE	
D304	MA8075	DIODE	
D305	MA8075	DIODE	
R301	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R302	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R303	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R304	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R305	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R306	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R307	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R308	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R309	NRSA63J-474N	RESISTOR	470KΩ,1/16W
R310	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R311	NRSA63J-333N	RESISTOR	33KΩ,1/16W
R312	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R313	NRSA63J-333N	RESISTOR	33KΩ,1/16W
R314	NRSA63J-333N	RESISTOR	33KΩ,1/16W
R315	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R316	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R317	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R318	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R319	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R320	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R321	NRSA63J-685N	RESISTOR	6.8MΩ,1/16W
R322	NRSA63J-474N	RESISTOR	470KΩ,1/16W
R323	NRSA63J-105N	RESISTOR	1MΩ,1/16W
R324	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R325	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R326	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R327	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R328	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R329	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R330	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R331	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R332	NRSA63J-330N	RESISTOR	33Ω,1/16W
R333	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R334	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R335	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R336	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R337	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R338	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R339	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R340	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R341	NRSA63J-333N	RESISTOR	33KΩ,1/16W
R342	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R343	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R344	NRSA63J-101N	RESISTOR	100Ω,1/16W
R345	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R347	NRSA63J-152N	RESISTOR	1.5KΩ,1/16W
R348	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R349	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
R351	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R352	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R353	NRSA63J-152N	RESISTOR	1.5KΩ,1/16W
R354	NRSA63J-152N	RESISTOR	1.5KΩ,1/16W

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	R355	NRSA63J-102N	RESISTOR	1KΩ,1/16W
⚠	R356	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R358	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R359	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R361	NRSA63J-473N	RESISTOR	47KΩ,1/16W
	R362	NRSA63J-473N	RESISTOR	47KΩ,1/16W
	R363	NRSA63J-221N	RESISTOR	220Ω,1/16W
	R364	NRSA63J-473N	RESISTOR	47KΩ,1/16W
	R365	NRSA63J-473N	RESISTOR	47KΩ,1/16W
	R366	NRSA63J-473N	RESISTOR	47KΩ,1/16W
	R367	NRSA63J-473N	RESISTOR	47KΩ,1/16W
	R369	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
	R370	NRSA63J-473N	RESISTOR	47KΩ,1/16W
	R371	NRSA63J-473N	RESISTOR	47KΩ,1/16W
	R372	NRSA63J-473N	RESISTOR	47KΩ,1/16W
	R373	NRSA63J-473N	RESISTOR	47KΩ,1/16W
	R374	NRSA63J-473N	RESISTOR	47KΩ,1/16W
	R375	NRSA63J-473N	RESISTOR	47KΩ,1/16W
	R376	NRSA63J-473N	RESISTOR	47KΩ,1/16W
	R377	NRSA63J-473N	RESISTOR	47KΩ,1/16W
	R378	NRSA63J-473N	RESISTOR	47KΩ,1/16W
	R379	NRSA63J-473N	RESISTOR	47KΩ,1/16W
	R380	NRSA63J-473N	RESISTOR	47KΩ,1/16W
	R381	NRSA63J-473N	RESISTOR	47KΩ,1/16W
	R382	NRSA63J-473N	RESISTOR	47KΩ,1/16W
	R383	NRSA63J-473N	RESISTOR	47KΩ,1/16W
	R384	NRSA63J-473N	RESISTOR	47KΩ,1/16W
	R385	NRSA63J-473N	RESISTOR	47KΩ,1/16W
	R386	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R387	NRSA63J-474N	RESISTOR	470KΩ,1/16W
	R388	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R389	NRSA63J-473N	RESISTOR	47KΩ,1/16W
	R390	NRSA63J-474N	RESISTOR	470KΩ,1/16W
	R391	NRSA63J-473N	RESISTOR	47KΩ,1/16W
	R396	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R397	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R398	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R601	NRSA63J-182N	RESISTOR	1.8KΩ,1/16W
	R602	NRSA63J-104N	RESISTOR	100KΩ,1/16W
	R603	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
	R604	NRSA63J-105N	RESISTOR	1MΩ,1/16W
	R605	NRSA63J-105N	RESISTOR	1MΩ,1/16W
	R606	NRSA63J-475N	RESISTOR	4.7MΩ,1/16W
	R608	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
	R609	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
	RA301	YU41580	RESISTOR ARRAY	
	C301	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C302	QCFA1CZ-105	CAPACITOR	1μF,16V
	C303	QCFA1CZ-105	CAPACITOR	1μF,16V
	C304	QCFA1CZ-105	CAPACITOR	1μF,16V
	C305	QCFA1CZ-105	CAPACITOR	1μF,16V
	C306	NEH11CM-476N	E CAPACITOR	47μF,16V
	C307	NEH10JM-107N	E CAPACITOR	100μF,6.3V

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	C308	QCFA1CZ-105	CAPACITOR	1μF,16V
	C309	QCFA1CZ-105	CAPACITOR	1μF,16V
	C310	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C311	NCT07CH-120A	CAPACITOR	12PF
	C312	NCT07CH-300A	CAPACITOR	30PF
	C313	NCT07CH-100A	CAPACITOR	10PF
	C314	PU59867-200X	TRIMMER CAPACITOR, IND POSITION	20PF
	C315	QCFA1CZ-105	CAPACITOR	1μF,16V
	C316	QCFA1CZ-105	CAPACITOR	1μF,16V
	C317	NEE21AM-475R	TANTAL CAPACITOR	4.7μF,10V
	C318	NCB31EK-153A	CAPACITOR	0.015μF,25V
	C319	NCT06CH-270A	CAPACITOR	27PF
	C321	PU59867-200X	TRIMMER CAPACITOR,TITEL OSC	20PF
	C322	NCT06CH-220A	CAPACITOR	22PF
	C323	NEH11HM-225N	E CAPACITOR	2.2μF,50V
	C324	YU41415-156	TANTAL CAPACITOR	15μF
	C325	NCT07CH-390A	CAPACITOR	39PF
	C326	NCT07CH-390A	CAPACITOR	39PF
	C327	QCFA1CZ-105	CAPACITOR	1μF,16V
	C328	QCFA1CZ-105	CAPACITOR	1μF,16V
	C329	NCT07CH-330A	CAPACITOR	33PF
	C330	NCT07CH-330A	CAPACITOR	33PF
	C331	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C332	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C333	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C334	NCB31EK-103A	CAPACITOR	0.01μF,25V
	L301	YU41607	INDUCTOR	
	L302	YU41607	INDUCTOR	
	L303	YU41607	INDUCTOR	
	L304	YU41607	INDUCTOR	
	L305	YU41135-390K	COIL	39μH
		or YU40248-390K	COIL	39μH
		or YU40740-390K	COIL	39μH
	L306	YU41135-220K	COIL	22μH
	L307	YU41607	INDUCTOR	
⚠	X301	YU40141	CRYSTAL RESONATOR	
⚠	X302	YU41490	CERALOCK	
	WR1	YU41681-2	CTL-DIS FPC	
	WR2	ML-Y00508A	TITLE BOARD WIRE,FOR CN308	
	TP301	YU40581	TEST PIN,TITLE PLL ERROR	
	TP302	YU40581	TEST PIN,IND CLOCK	
	CN301	YU40684-22	CAP HOUSING,(BOARD TO BOARD)	
	CN302	YU40684-12	CAP HOUSING,(BOARD TO BOARD)	
	CN303	YU40684-8	CAP HOUSING,(BOARD TO BOARD)	
	CN304	YU41356-3	CAP HOUSING	
	CN305	YU41354-8	CAP HOUSING	
	CN306	YU41355-7	CAP HOUSING	
	CN307	YU41355-5	CAP HOUSING	
	CN308	YU41356-4	CAP HOUSING	
	CN309	YU41356-2	CAP HOUSING	

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AW BOARD ASSEMBLY <24>

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
PWBA	YB20384A	AUTO WHITE BOARD ASSY	
IC401	T2368FAP	IC	
IC402	MN18888JFFS	IC	
	or MN18P888FAP-F	IC	
IC403	MSM16811MS	IC	
IC404	LM324DB	IC	
IC405	TC4S66F	IC	
IC406	TC4S66F	IC	
IC407	MN12821(QR)	IC	
IC408	TC7S08F	IC	
IC409	UPC319G2	IC	
IC410	LM324DB	IC	
IC411	LM324DB	IC	
IC412	TC4052BF	IC	
IC413	TC7S32F	IC	
Q401	XP5601	TRANSISTOR	
Q402	XP5601	TRANSISTOR	
Q403	2SA1532(BC)	TRANSISTOR	
D401	MA141K	DIODE	
D402	MA141K	DIODE	
R401	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R405	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R407	NRSA63J-183N	RESISTOR	18KΩ,1/16W
R408	NRSA63J-683N	RESISTOR	68KΩ,1/16W
R409	NRSA63J-392N	RESISTOR	3.9KΩ,1/16W
R410	NRSA63J-223N	RESISTOR	22KΩ,1/16W
R411	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
R412	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
R413	NRSA63J-153N	RESISTOR	15KΩ,1/16W
R414	NRSA63J-153N	RESISTOR	15KΩ,1/16W
R415	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R416	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R418	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R419	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R420	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R421	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R422	NRSA63J-101N	RESISTOR	100Ω,1/16W
R423	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R425	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R426	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R427	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R428	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R429	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R430	NRSA63J-473N	RESISTOR	47KΩ,1/16W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R431	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R432	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R433	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R434	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R435	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R436	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R437	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R438	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R439	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R440	NRSA63J-153N	RESISTOR	15KΩ,1/16W
R441	NRSA63J-303N	RESISTOR	30KΩ,1/16W
R442	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R443	NRSA63J-113N	RESISTOR	11KΩ,1/16W
R444	NRSA63J-113N	RESISTOR	11KΩ,1/16W
R445	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R446	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R450	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R451	NRSA63J-223N	RESISTOR	22KΩ,1/16W
R452	NRSA63J-273N	RESISTOR	27KΩ,1/16W
R453	NRSA63J-163N	RESISTOR	16KΩ,1/16W
R454	NRSA63J-333N	RESISTOR	33KΩ,1/16W
R456	NRSA63J-104N	RESISTOR	100KΩ,1/16W
R457	NRSA63J-223N	RESISTOR	22KΩ,1/16W
R458	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
R459	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
R460	NRSA63J-303N	RESISTOR	30KΩ,1/16W
R461	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R462	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R463	NRSA63J-303N	RESISTOR	30KΩ,1/16W
R464	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R465	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R466	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R467	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R468	NRSA63J-303N	RESISTOR	30KΩ,1/16W
R469	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R470	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R471	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R472	NRSA63J-182N	RESISTOR	1.8KΩ,1/16W
R473	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R475	NRSA63J-103N	RESISTOR	10KΩ,1/16W
RA401	YU41580	RESISTOR ARRAY	
RA402	YU41580	RESISTOR ARRAY	
C401	NEH11CM-106N	E CAPACITOR	10μF,16V
C402	NCB31EK-103A	CAPACITOR	0.01μF,25V
C403	NCB31EK-103A	CAPACITOR	0.01μF,25V
C404	NEH11CM-106N	E CAPACITOR	10μF,16V
C405	QCYA1EK-473	CAPACITOR	0.047μF,25V
C406	QCYA1EK-473	CAPACITOR	0.047μF,25V
C407	QCYA1EK-473	CAPACITOR	0.047μF,25V
C408	QCYA1EK-473	CAPACITOR	0.047μF,25V
C409	NCB31EK-103A	CAPACITOR	0.01μF,25V
C410	NCB31EK-103A	CAPACITOR	0.01μF,25V
C411	NEE20JM-475R	TANTAL CAPACITOR	4.7μF,6.3V

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C412	NCB31EK-103A	CAPACITOR	0.01μF,25V
C413	NEH11CM-106N	E CAPACITOR	10μF,16V
C414	NCB31EK-103A	CAPACITOR	0.01μF,25V
C415	NEE21DM-474R	TANTAL CAPACITOR	0.47μF,20V
C416	NEE21DM-474R	TANTAL CAPACITOR	0.47μF,20V
C417	NEE21DM-474R	TANTAL CAPACITOR	0.47μF,20V
C418	NEE21DM-474R	TANTAL CAPACITOR	0.47μF,20V
C419	QCYA1EK-473	CAPACITOR	0.047μF,25V
C420	QCYA1EK-473	CAPACITOR	0.047μF,25V
C421	NCB31EK-103A	CAPACITOR	0.01μF,25V
C422	NCB31EK-103A	CAPACITOR	0.01μF,25V
C423	NEH11CM-106N	E CAPACITOR	10μF,16V
C424	NCB31EK-103A	CAPACITOR	0.01μF,25V
C425	NCB31EK-103A	CAPACITOR	0.01μF,25V
C426	NCT07CH-151A	CAPACITOR	150PF
C427	NCT07CH-151A	CAPACITOR	150PF
C428	NCT07CH-151A	CAPACITOR	150PF
C429	NCB31EK-103A	CAPACITOR	0.01μF,25V
C431	NCB31EK-103A	CAPACITOR	0.01μF,25V
C432	NCB31EK-103A	CAPACITOR	0.01μF,25V
C433	NEH11CM-106N	E CAPACITOR	10μF,16V
C434	NCB31EK-103A	CAPACITOR	0.01μF,25V
C435	NCB31EK-103A	CAPACITOR	0.01μF,25V
C436	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C437	NCB31EK-103A	CAPACITOR	0.01μF,25V
C439	NCB31EK-103A	CAPACITOR	0.01μF,25V
C440	NCB31EK-103A	CAPACITOR	0.01μF,25V
C441	NCB31EK-103A	CAPACITOR	0.01μF,25V
C447	NCB31EK-103A	CAPACITOR	0.01μF,25V
C448	NCB31EK-103A	CAPACITOR	0.01μF,25V
L401	YU41135-220K	COIL	22μH
	or YU40740-220K	COIL	22μH
L402	YU41135-220K	COIL	22μH
	or YU40740-220K	COIL	22μH
L403	YU41135-220K	COIL	22μH
	or YU40740-220K	COIL	22μH
L404	YU41135-220K	COIL	22μH
	or YU40740-220K	COIL	22μH
⚠ X401	PEVB0362	CERAMIC OSC,OSC401	
SLD1	YQ40538	SHEET	
TP401	YU40581	TEST PIN,GND	
CN402	YU40684-22	CAP HOUSING,(BOARD TO BOARD)	
CN403	YU40096-8	CAP HOUSING	

#⚠ REF No. PART No. PART NAME, DESCRIPTION

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AF BOARD ASSEMBLY <25>

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
PWBA	YB20364D-01	AUTO FOCUS BOARD ASSY	
IC501	JCY0007	IC	
IC502	MN18888JFES	IC	
IC503	MN12821(QR)	IC	
IC504	HA13489MP	IC	
IC505	AN2571FAP	IC	
IC506	JCY0009	IC	
IC507	LM324DB	IC	
IC508	TK10682M	IC	
Q501	XP5601	TRANSISTOR	
Q502	XP5601	TRANSISTOR	
Q503	DTA114EU	TRANSISTOR	
Q504	XP2501	TRANSISTOR	
Q505	DTA114EU	TRANSISTOR	
Q506	XP2401	TRANSISTOR	
Q507	DTA114EU	TRANSISTOR	
D502	MA141WK	DIODE	
R501	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R502	NRSA63J-392N	RESISTOR	3.9KΩ,1/16W
R503	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R504	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R505	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R506	NVP1306-334N	V RESISTOR,GAIN	330KΩ
	or NVP1302-334N	V RESISTOR,GAIN	330KΩ
R507	NRSA63J-823N	RESISTOR	82KΩ,1/16W
R508	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
R509	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R510	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
R513	NVP1306-222N	V RESISTOR,OFFSET	2.2KΩ
	or NVP1302-222N	V RESISTOR,OFFSET	2.2KΩ
R515	NRSA63J-183N	RESISTOR	18KΩ,1/16W
R516	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R517	NRSA63J-123N	RESISTOR	12KΩ,1/16W
R518	NRSA63J-683N	RESISTOR	68KΩ,1/16W
R519	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R522	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R523	NRSA63J-223N	RESISTOR	22KΩ,1/16W
R524	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R528	NRSA63J-272N	RESISTOR	2.7KΩ,1/16W
R529	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R530	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R531	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R532	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R533	NRSA63J-821N	RESISTOR	820Ω,1/16W
R534	NRSA63J-221N	RESISTOR	220Ω,1/16W
R535	NRSA63J-102N	RESISTOR	1KΩ,1/16W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R536	NRSA63J-471N	RESISTOR	470Ω,1/16W
R537	NRSA63J-471N	RESISTOR	470Ω,1/16W
R538	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R539	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R540	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R541	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R544	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R545	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R546	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R548	NRSA63J-331N	RESISTOR	330Ω,1/16W
R549	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R550	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R551	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R552	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R560	NRSA63J-183N	RESISTOR	18KΩ,1/16W
R561	NRSA63J-683N	RESISTOR	68KΩ,1/16W
R562	NRSA63J-271N	RESISTOR	270Ω,1/16W
R563	NRSA63J-682N	RESISTOR	6.8KΩ,1/16W
R564	NRSA63J-273N	RESISTOR	27KΩ,1/16W
R565	NRSA63J-183N	RESISTOR	18KΩ,1/16W
R566	NRSA63J-333N	RESISTOR	33KΩ,1/16W
R567	NRSA63J-333N	RESISTOR	33KΩ,1/16W
R568	NRSA63J-682N	RESISTOR	6.8KΩ,1/16W
R569	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
R570	NRSA63J-182N	RESISTOR	1.8KΩ,1/16W
R571	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R572	NRSA63J-471N	RESISTOR	470Ω,1/16W
R573	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R574	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R575	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R576	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R578	NRSA63J-682N	RESISTOR	6.8KΩ,1/16W
R579	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R580	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R581	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R582	NRSA63J-123N	RESISTOR	12KΩ,1/16W
R583	NRSA63J-202N	RESISTOR	2KΩ,1/16W
R585	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R586	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R587	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
R588	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R589	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R592	NRSA63J-821N	RESISTOR	820Ω,1/16W
R594	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R595	NRSA63J-333N	RESISTOR	33KΩ,1/16W
R596	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R597	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R598	NRSA63J-822N	RESISTOR	8.2KΩ,1/16W
R599	NRSA63J-393N	RESISTOR	39KΩ,1/16W
R800	NVP1306-223N	V RESISTOR,EE LEVEL	22KΩ
	or NVP1302-223N	V RESISTOR,EE LEVEL	22KΩ
R801	NRSA63J-563N	RESISTOR	56KΩ,1/16W
R802	NRSA63J-184N	RESISTOR	180KΩ,1/16W
R803	NRSA63J-105N	RESISTOR	1MΩ,1/16W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R805	NRSA63J-104N	RESISTOR	100KΩ,1/16W
R806	NRSA63J-104N	RESISTOR	100KΩ,1/16W
R807	NRSA63J-183N	RESISTOR	18KΩ,1/16W
R808	NRSA63J-393N	RESISTOR	39KΩ,1/16W
R809	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R810	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R811	NRSA63J-101N	RESISTOR	100Ω,1/16W
R812	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R813	NRVA62D-104N	RESISTOR	100KΩ,1/16W
R814	NRVA62D-822N	RESISTOR	8.2KΩ,1/16W
R815	NRSA63J-105N	RESISTOR	1MΩ,1/16W
R816	NRVA62D-105N	RESISTOR	1MΩ,1/16W
R817	NRSA63J-104N	RESISTOR	100KΩ,1/16W
R818	NRSA63J-563N	RESISTOR	56KΩ,1/16W
R819	NRSA63J-105N	RESISTOR	1MΩ,1/16W
R820	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
R821	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
R822	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
R823	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R824	NRSA63J-272N	RESISTOR	2.7KΩ,1/16W
R825	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R827	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R830	NRSA63J-105N	RESISTOR	1MΩ,1/16W
R832	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R834	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R835	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R837	NRSA63J-2R2N	RESISTOR	2.2Ω,1/16W
RA501	YU41573-103N	RESISTOR ARRAY	
RA502	YU41573-103N	RESISTOR ARRAY	
RA503	YU41573-103N	RESISTOR ARRAY	
RA504	YU41573-103N	RESISTOR ARRAY	
C501	NEH30JM-226N	E CAPACITOR	22μF,6.3V
	or NEH10JM-226N	E CAPACITOR	22μF,6.3V
C502	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C503	NEH30JM-226N	E CAPACITOR	22μF,6.3V
	or NEH10JM-226N	E CAPACITOR	22μF,6.3V
C504	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C505	NEH31CM-106N	E CAPACITOR	10μF,16V
	or NEH11CM-106N	E CAPACITOR	10μF,16V
C506	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C507	NEH11CM-476N	E CAPACITOR	47μF,16V
	or NEH31CM-476N	E CAPACITOR	47μF,16V
C508	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C509	NEE21CM-336R	TANTAL CAPACITOR	33μF,16V
C510	NCB31HK-222A	CAPACITOR	0.0022μF,50V
C511	NCR21CK-473A	CAPACITOR	0.047μF,16V
C512	NEE20GM-475R	TANTAL CAPACITOR	4.7μF,4.0V
C513	NCR21CK-473A	CAPACITOR	0.047μF,16V
C514	NCB31HK-102A	CAPACITOR	0.001μF,50V
C515	NCT07CH-5R0A	CAPACITOR	5PF
C516	NCT07CH-151A	CAPACITOR	150PF
C517	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C518	NCB31EK-103A	CAPACITOR	0.01μF,25V
C519	NCT07CH-220A	CAPACITOR	22PF

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C520	NCB31EK-103A	CAPACITOR	0.01µF,25V
C521	NCR21CK-473A	CAPACITOR	0.047µF,16V
C522	NCT07CH-151A	CAPACITOR	150PF
C523	NCT07CH-121A	CAPACITOR	120PF
C524	QCYA1HK-103	CAPACITOR	0.01µF,50V
C525	NCB31HK-102A	CAPACITOR	0.001µF,50V
C526	QCYA1HK-273	CAPACITOR	0.027µF,50V
C529	QCYA1HK-273	CAPACITOR	0.027µF,50V
C530	NCT07CH-101A	CAPACITOR	100PF
C531	QCYA1HK-273	CAPACITOR	0.027µF,50V
C532	NCT07CH-101A	CAPACITOR	100PF
C533	NCR21CK-473A	CAPACITOR	0.047µF,16V
C534	NCR31CK-223A	CAPACITOR	0.022µF,16V
C535	NCR21CK-473A	CAPACITOR	0.047µF,16V
C536	NCR31CK-223A	CAPACITOR	0.022µF,16V
C537	NCR21CK-473A	CAPACITOR	0.047µF,16V
C538	NCR31CK-223A	CAPACITOR	0.022µF,16V
C539	NCT07CH-101A	CAPACITOR	100PF
C540	NCB31EK-103A	CAPACITOR	0.01µF,25V
C541	NCT07CH-121A	CAPACITOR	120PF
C542	NCT07CH-330A	CAPACITOR	33PF
C543	NCT07CH-151A	CAPACITOR	150PF
C544	NCF31CZ-104A	CAPACITOR	0.1µF,16V
C547	NCF31CZ-104A	CAPACITOR	0.1µF,16V
C548	NCF31CZ-104A	CAPACITOR	0.1µF,16V
C549	NCF31CZ-104A	CAPACITOR	0.1µF,16V
C550	NCF31CZ-104A	CAPACITOR	0.1µF,16V
C551	NCT07CH-151A	CAPACITOR	150PF
C552	NCT07CH-151A	CAPACITOR	150PF
C553	NCF31CZ-104A	CAPACITOR	0.1µF,16V
C555	NCF31CZ-104A	CAPACITOR	0.1µF,16V
C560	NEN11EM-226N	E CAPACITOR	22µF,25V
C561	QCY81EK-104	CAPACITOR	0.1µF,25V
C562	QCYA1EK-104	CAPACITOR	0.1µF,25V
C563	QCYA1EK-104	CAPACITOR	0.1µF,25V
C564	NCR21CK-473A	CAPACITOR	0.047µF,16V
C565	NCR21CK-473A	CAPACITOR	0.047µF,16V
C566	NCR21CK-473A	CAPACITOR	0.047µF,16V
C568	NCB31HK-102A	CAPACITOR	0.001µF,50V
C569	NEE21VM-224R	TANTAL CAPACITOR	0.22µF,35V
C570	NEE21CM-105R	TANTAL CAPACITOR	1µF,16V
C571	NEE21VM-224R	TANTAL CAPACITOR	0.22µF,35V
C572	NCF31CZ-104A	CAPACITOR	0.1µF,16V
C573	NCF31CZ-104A	CAPACITOR	0.1µF,16V
C574	NCR31CK-183A	CAPACITOR	0.018µF,16V
C575	NCR31CK-183A	CAPACITOR	0.018µF,16V
C576	NCF31CZ-104A	CAPACITOR	0.1µF,16V
C577	NCF31CZ-104A	CAPACITOR	0.1µF,16V
C579	NCT07CH-100A	CAPACITOR	10PF
C580	NCB31HK-102A	CAPACITOR	0.001µF,50V
L501	YU40740-470K	COIL	47µH
	or YU41135-470	COIL	47µH
L502	YU40740-470K	COIL	47µH
	or YU41135-470	COIL	47µH

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
L503	YU40740-470K	COIL	47µH
	or YU41135-470	COIL	47µH
L504	YU40740-470K	COIL	47µH
	or YU41135-470	COIL	47µH
L505	PU58201-330K	COIL	33µH
L506	PU58201-121K	COIL	120µH
⚠ X501	PEVB0362	RESONATOR, OSC501	
BPF501	YU40700-R	BAND PASS FILTER	
BPF502	YU41033-P	BAND PASS FILTER	
TP501	YU40581	TEST PIN,HOLE ELEMENT AMP OUT	
CN501	YU40682-16	CAP HOUSING,(BOARD TO BOARD)	
CN502	YU40682-8	CAP HOUSING,(BOARD TO BOARD)	
CN503	YU40096-6	CAP HOUSING	
CN504	YU40096-8	CAP HOUSING	
CN505	YU40096-4B	CAP HOUSING	
CN506	YU40096-2	CAP HOUSING	
CN507	YU40096-3	CAP HOUSING	
CN508	YU40096-4	CAP HOUSING	
CN509	YU40096-4Y	CAP HOUSING	

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TITLE SWITCH BOARD ASSEMBLY <27>

PWBA	YB20356A-02	TITLE SW BOARD ASSY	
D741	SLM-125VWS	LED	
D742	SLM-125VWS	LED	
D743	MA8075	DIODE	
D744	MA8075	DIODE	
R741	NRSA63J-822N	RESISTOR	8.2KΩ,1/16W
R742	NRSA63J-682N	RESISTOR	6.8KΩ,1/16W
R743	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R744	NRSA63J-183N	RESISTOR	18KΩ,1/16W
R745	NRSA63J-273N	RESISTOR	27KΩ,1/16W
R746	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R748	NRSA63J-471N	RESISTOR	470Ω,1/16W
C741	NCF31CZ-104A	CAPACITOR	0.1µF,16V

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
SW741	PESW0570	TACT SWITCH,TITLE FADER	
SW742	PESW0570	TACT SWITCH,MEMORY	
SW743	PESW0570	TACT SWITCH,TITLE ON/OFF	
SW744	PESW0570	TACT SWITCH,COLOR SELECT	
SW745	PESW0570	TACT SWITCH,PAGE SELECT	
SW746	PESW0570	TACT SWITCH,IMAGE REVERSE	
CN741	YU40096-4	CAP HOUSING	

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CAMERA SWITCH BOARD ASSEMBLY <28>

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
PWBA	YB20375A-02	CAMERA SW BOARD ASSY	
D701	MA8075	DIODE	
D702	MA8075	DIODE	
D703	MA8075	DIODE	
D704	MA8075	DIODE	
D705	MA8075	DIODE	
D706	MA8075	DIODE	
D707	MA8075	DIODE	
D708	MA8075	DIODE	
R701	NRSA63J-822N	RESISTOR	8.2KΩ,1/16W
R702	NRSA63J-682N	RESISTOR	6.8KΩ,1/16W
R703	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R704	NRSA63J-183N	RESISTOR	18KΩ,1/16W
R705	NRSA63J-273N	RESISTOR	27KΩ,1/16W
R707	NRSA63J-471N	RESISTOR	470Ω,1/16W
R708	NRSA63J-471N	RESISTOR	470Ω,1/16W
R709	NRSA63J-471N	RESISTOR	470Ω,1/16W
R710	NRSA63J-471N	RESISTOR	470Ω,1/16W
B701	QRSA08J-0R0	RESISTOR	0Ω,1/10W
C701	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C702	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C703	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C704	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C705	NCF31CZ-104A	CAPACITOR	0.1μF,16V
SW701	PESW0570	TACT SWITCH,FULL AUTO	
SW702	PESW0570	TACT SWITCH,FOCUS	
SW703	PESW0570	TACT SWITCH,SHUTTER	
SW704	PESW0570	TACT SWITCH,WHITE BALANCE	
SW705	PESW0570	TACT SWITCH,DISPLAY	
SW706	PESW0570	TACT SWITCH,FADER	
SW707	PESW0570	TACT SWITCH,IRIS-	
SW708	PESW0570	TACT SWITCH,IRIS+	
SW709	PESW0570	TACT SWITCH,BLC	
SW710	PU59676	TACT SWITCH,SUB TRIG	
WR1	YU41680-3	CTL-CSW FPC	

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DISPLAY SWITCH BOARD ASSEMBLY <29>

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
PWBA	YB20357A-02	DISPLAY SW BOARD ASSY	
D771	MA8075	DIODE	
D772	MA8075	DIODE	
D773	MA8075	DIODE	
D774	MA8075	DIODE	
R771	NRSA63J-822N	RESISTOR	8.2KΩ,1/16W
R772	NRSA63J-682N	RESISTOR	6.8KΩ,1/16W
R773	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R774	NRSA63J-183N	RESISTOR	18KΩ,1/16W
R777	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R778	NRSA63J-471N	RESISTOR	470Ω,1/16W
C771	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C772	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C773	NCF31CZ-104A	CAPACITOR	0.1μF,16V
SW771	PESW0570	TACT SWITCH,SET+	
SW772	PESW0570	TACT SWITCH,SET-	
SW773	PESW0570	TACT SWITCH,SELECT	
SW774	PESW0570	TACT SWITCH,MODE	
SW775	PESW0570	TACT SWITCH,REC TIME RESET	
SW776	YU40111	SLIDE SWITCH	
CN771	YU41354-5	CAP HOUSING	
CN772	YU41356-2	CAP HOUSING	

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UPPER DRUM BOARD ASSEMBLY <31>

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION
PWBA	YDM3055	UPPER DRUM BOARD

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E.VF BOARD ASSEMBLY <50>

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
PWBA	YQ30723-101	E.VF BOARD ASSY	
⚠ FBT1	YQ30723-114	F.BACK TRANS	
HLC1	YQ30723-113	H.L.C(COIL)	
⚠ IC1	AN2512S	IC	
IC2	AN78L05M	IC	
D01	DC8010	DIODE	
	or MA151WK	DIODE	
	or DAN202K	DIODE	
D02	MA152WK	DIODE	
D03	1SS244	DIODE	
D04	MA157A	DIODE	
D05	ERA22-08	DIODE	
D06	ESJA04-02	DIODE	
VR1	YQ30723-201	V.RESISTOR,V.SIZE	
VR2	YQ30723-202	V.RESISTOR,H.HOLD	
VR3	YQ30723-203	V.RESISTOR,CONTRAST	
VR4	YQ30723-204	V.RESISTOR,BRIGHT	
R01	QRSA08J-363YM	RESISTOR	36KΩ,1/10W
R02	QRSA08J-3R9YN	RESISTOR	3.9Ω,1/10W
	or QRSA08J-5R1YN	RESISTOR	5.1Ω,1/10W
	or QRSA08J-7R5YN	RESISTOR	7.5Ω,1/10W
	or QRSA08-6R2YN	RESISTOR	0.2YΩ,1/10W
R03	QRSA08J-390	RESISTOR	39Ω,1/10W
R04	QRSA08J-514	RESISTOR	510KΩ,1/10W
R05	QRSA08J-104YN	RESISTOR	100KΩ,1/10W
R06	QRSA08J-242	RESISTOR	2.4KΩ,1/10W
R07	QRSA08J-220	RESISTOR	22Ω,1/10W
R08	QRSA08J-125YN	RESISTOR	1.2MΩ,1/10W
R09	QRSA08J-113YN	RESISTOR	11KΩ,1/10W
R10	QRSA08J-512	RESISTOR	5.1KΩ,1/10W
R11	QRSA08J-202	RESISTOR	2KΩ,1/10W
R12	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
R13	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R14	QRSA08J-273	RESISTOR	27KΩ,1/10W
R15	QRSA08J-332YN	RESISTOR	3.3KΩ,1/10W
R16	QRSA08J-200	RESISTOR	20Ω,1/10W
	or QRSA08J-240	RESISTOR	24Ω,1/10W
	or QRSA08J-150YN	RESISTOR	15Ω,1/10W
R17	QRS188J-335YN	RESISTOR	3.3MΩ,1/8W
R18	QRS188J-335YN	RESISTOR	3.3MΩ,1/8W
R19	QRSA08J-152	RESISTOR	1.5KΩ,1/10W
R20	QRSA08J-224	RESISTOR	220KΩ,1/10W
R21	QRSA08J-122	RESISTOR	1.2KΩ,1/10W
C01	YQ03723-301	CAPACITOR	
C02	QCF81CZ-105	CAPACITOR	1μF,16V
C03	QCYA1EK-223	CAPACITOR	0.022μF,25V
C04	YQ30723-302	TANTAL CAPACITOR	
C05	QETA1AM-107	E CAPACITOR	100μF,10V
C06	QCF81CZ-105	CAPACITOR	1μF,16V
C07	YQ30723-303	CAPACITOR	
C08	QETA1AM-107	E CAPACITOR	100μF,10V
C09	QETA1-AM107	E CAPACITOR	100μF
C10	YQ30723-304	CAPACITOR	
C11	QER41HM-475	E CAPACITOR	4.7μF,50V
C12	QEK41HM-335	E CAPACITOR	3.3μF,50V
C13	QCTA1CH-271	CAPACITOR	270PF,16V
C14	QCYA1EK-333	CAPACITOR	0.033μF,25V
C15	QCYA1HK-102	CAPACITOR	0.001μF,50V
C16	QEJ40JM-686	TANTAL E CAPACITOR	68μF,6.3V
⚠ L01	YQ30723-115	COIL	
TR1	2SC2812	TRANSISTOR	
	or 2SC2412K	TRANSISTOR	
	or 2SC3052	TRANSISTOR	
	or 2SD601A	TRANSISTOR	
⚠ TR2	2SC4132-273	TRANSISTOR	
⚠	or 2SD1615A	TRANSISTOR	
WR1	YQ30723-116	VF CABLE	
CN1	YU30315-210	CAP HOUSING	
CN2	YU30315-210	CAP HOUSING	
CN3	PU58654-3	CAP HOUSING	
CN4	YQ30723-111	CRT CONNECTOR	
TF1	YQ30723-117	THERMISTOR	

SECTION 8
TECHNICAL INFORMATIONS

8.1 M-CTL CPU (IC301) PIN FUNCTIONS

Pin No.	Symbol	Label	I/O	Description	Pin No.	Symbol	Label	I/O	Description
1	P63	NORMAL AUDIO MUTE	–	NC	37	P50	TU SENS	I	Reel Rotation Detect.
2	P62	NORMAL BIAS (L)	O	Normal Audio REC Mode : L	38	P17	SP/EP SW	I	EP Mode: L, SP Mode: H
3	P61	NORMAL AUDIO PB	O	Normal Audio PB Mode : H	39	P16	CAS SW (L)	I	Housing Lock: H
4	P60	END LED	O	End Sensor Control	40	P15	CAM B	I	
5	AN7	BATT CHK	I	Power Voltage Check	41	P14	CAM A	I	
6	AN6	END SENS	I	Tape End Detect	42	P13	AUDIO OUT SEL	–	NC
7	AN5	AVG FM	I	Average FM Input (for Auto Tracking)	43	P12	EXT RM (L)	I	Not Used
8	AN4	DEW	I	Dew Sensed: L, Normal: H	44	P11	H DET (L)	–	NC
9	AN3	C. COVER SW	I	PB: L, CAMERA: H	45	P10	S. LOCK	I	Servo Lock: L
10	AN2	NTSC (L)	I	NTSC Mode : L	46	P75	AUDIO MUTE	O	Audio Mute Control, Mute ON : H
11	AN1	TEST 0	I	Test Mode : L	47	P74	OS ON (L)	–	NC
12	AN0	S. VHS	–	NC	48	P73	L. DATA	O	Serial Data Transmission to Operation Unit
13	P71	S. CLK	O	Serial Data Transfer Clock (To Servo)	49	P72	L. CLK	O	Serial Data Transfer Clock to Operation Unit
14	P70	S. DATA	O	Serial Data Transmission to Servo	50	P07	V.A. MUTE	O	Video/Audio Mute Control, Mute ON : H
15	RDY	C. RDY (L)	I	Camera Serial Ready : L	51	P06	V. PB	O	PB Mode : H
16	CLK	C. SCLK	O	Serial Data Transfer Clock (To Camera)	52	P05	HiFi REC MUTE (L)	–	NC
17	S OUT	VC. DATA	O	Serial Data Transmission to Camera	53	P04	V. SW OFF	O	Video SW Pulse Control (SW Pulse OFF: H)
18	S IN	CV. DATA	I	Serial Data Reception from Camera	54	P03	S. ENABLE	I	Not used in general
19	CNTR	CAP FG	I	For SP/EP Discrimination, Tape End Detection	55	P02	A. FM (L)	–	NC
20	INT 2	PWR SW (L)	I	Power SW Input (¯|_), REMOTE DATA INPUT	56	P01	V. REC MUTE (L)	O	Video REC Mute Control, Mute ON : L
21	P31	M STOP	I	Memory Stop : H	57	P00	V. REC (L)	O	Video REC ON : L
22	P30	L. RDY (L)	I	Operation Ready : L	58	P27	LOAD REV	O	Loading Motor Rotation Direction Control
23	INT 1	D. FF	I	Drum Rotation Detect, End LED ON Timing	59	P26	LOAD FWD	O	
24	CNVss	GND	–	GND	60	P25	FLY H ON	O	FE Head Control, ON : H
25	RESET	RESET (L)	I	Reset : L	61	P24	CTL ERS	O	CTL ERS Control, ON : H
26	X1	XTAL	I	4 MHz Clock	62	P23	REMOTE	O	Remote Control, Remote ON : H
27	X0	XTAL	O		63	P22	ALM ON	O	Alarm ON : H
28	ϕ	NC	–	NC	64	P21	C. CPU ON (L)	O	Camera Control, Camera CPU ON : L
29	Vss	GND	–	GND	65	Vss	GND	–	GND
30	P57	V. SWD	I	REC START/STOP TIMING DETECT	66	P20	D. PWR ON	O	Power Control, Deck Power ON : H
31	P56	REC SAFE SW	I	Safety Tab Detect, REC SAFE : H	67		VCC	I	AL 5 V
32	P55	PB CTL P	I	SP/EP Discrimination, for Z.F.E.	68		A Vss	–	GND
33	P54	SUP SENS	I	Reel Rotation Detection, Tape Remainder Det.	69		A VREF	I	REG 5 V
34	P53	A. FF	I	Not Used	70	DA	CPU REF	O	Capstan Motor Drive Voltage Output
35	P52	A. SWB	I	Not Used	71	PWM	NC	–	NC
36	P51	EJECT SW (L)	I	Eject SW Detect, EJECT : L	72	P64	H PB (L)	–	NC

	EJECT	STOP1	FF	REC	REC PAUSE	REC LOCK	STOP2	PLAY	REC	STILL
CAM A	L	L	L	L	M	M	M	L	L	L
CAM B	M	L	L	L	L	L	M	M	M	M

Table 8-1 IC301 pin functions

8.2 EMERGENCY MODE TABLE

When something abnormal occurs in operation, the LCD displays an emergency warning corresponding to a symptom.

LCD Display	Symptom	Description
◀◀	CAP FG EMG	'Capstan FG emergency' detected in ASB
▶ ▶▶	DRUM EMG	'Drum emergency' detected in drum rotation
▶▶	CTL P EMG	'Control pulse emergency' detected in writing VISS
❚❚	UNLOAD EMG	'Unloading emergency' detected in unloading
❚❚▶	LOAD EMG	'Loading emergency' detected in loading
▶ ◀◀	REEL EMG	'Reel emergency' detected in reel rotation

-\ | /- : Blinking

Table 8-2 Emergency mode indications

8.3 SERVO CPU ($\boxed{0}\boxed{1}$ MAIN IC101) PIN FUNCTIONS

Pin No.	Label	I/O	Description	Pin No.	Label	I/O	Description
1	ADV	O	Tracking correction pulse output	29	VDD	–	System power source
2	CAP CTL	O	Control mode switching (CPU/SERVO mode)	30	M-D	O	Drum phase monitor output
3	SP	O	Mode switching (SP mode) signal output	31	M-C	O	Capstan phase monitor output
4	FM EMV	–	NC	32	SEL 2	I	Setup terminal (Head setting)
5	CPU	O	Capstan phase control PWM output	33	SEL 1	I	(Same as above)
6	CFV	O	Capstan speed control PWM output	34	NC	–	NC
7	BRK	O	Capstan brake control	35	NC	–	NC
8	FWD	O	Normal/Reverse rotation of capstan	36	NC	–	NC
9	WIDE	O	CTL pulse rewrite control signal	37	NC	–	NC
10	WRITE	O	(Same as above)	38	NC	–	NC
11	DUTY	O	REC control duty control	39	D ON	O	Drum on output
12	TEST	O	TEST terminal (NC)	40	SW MM	I/O	PG MM terminal
13	FOSC	O	Reference signal input	41	D FG/PG	I	Drum PG/FG input
14	GND	–	GND	42	GND	–	GND
15	YNR	O	YNR pulse output	43	DPV	O	Drum phase control PWM output
16	VP ON	O	V pulse on/off mode control	44	DFV	O	Drum speed control PWM output
17	VP	O	V sync (false pulse) output	45	GD	O	Drum FG error correction timing output
18	SYNC	I	V sync input	46	ASWD	O	Audio head switching pulse output (A SW D)
19	FRAME	I	Frame pulse input	47	ASWC	O	" (A SW C)
20	AV REC	I	Camera/External input mode switching	48	ASWB	O	" (A SW B)
21	S OUT	O	Servo lock control	49	ASWA	O	" (A SW A)
22	C FG	I	Capstan FG input	50	A FF	O	" (A FF)
23	CTL P	I	Control pulse input	51	VSWD	O	Video head switching pulse output (R SW D)
24	D FF	O	Drum flipflop	52	VSWC	O	" (V SW C)
25	S CLK	I	Serial data input	53	VSWB	O	" (V SW B)
26	S DATA	I	Data transfer clock input	54	VSWA	O	" (V SW A)
27	EP DL	–	NC	55	H FF	O	" (H FF)
28	PW ON	I	Reset terminal	56	V FF	O	" (V FF)

Table 8-3 IC101 pin functions

8.4 CAMERA CPU (2 3 CTL IC301) PIN FUNCTIONS

PIN No.	SYMBOL	SIGNAL NAME	IN/OUT	CONTENTS				
1	P42	LITHIUM BATT DOWN (L)	IN					
2	P41	REC TIME SW ON (H)	IN					
3	P40	LOW LIGHT (L)	IN					
4	IN3	JIG (L)	IN	Not used				
5	IN2	OPERATION SW3	IN	SET +, –, SELECT, MODE, REC TIME RESET				
6	IN1	OPERATION SW2	IN	TITLE FADER, MEMORY, TITLE ON/OFF, COLOR, PAGE, REVERSE				
7	IN0	OPERATION SW1	IN	FULL AUTO, FOCUS, SHUTTER, W. BAL, DISPLAY, FADER				
8	Vcc	UNSW 5V	IN					
9	P57	AGC ON (H)	OUT	IRIS OPEN (H)				
10	P56	TITLE WRITE ENABLE (L)	OUT					
11	P55	OSD STROBE (H)	OUT					
12	P54	VTR SERIAL READY (L)	OUT					
				PAGE	1	2	3	4
13	P53	TITLE PAGE-2	OUT		L	L	H	H
14	P52	TITLE PAGE-1	OUT		L	H	L	H
15	P51	CAMERA POWER ON (L)	OUT					
16	P50	HD	IN					
17	P37	OSD CLOCK	OUT	OSD DATA TRANSFER CLOCK				
18	P36	VTR SERIAL CLOCK	IN	SERIAL DATA TRANSFER CLOCK BETWEEN VTR and CAMERA				
19	P35	VTR SERIAL DATA	OUT	CAMERA DATA OUTPUT				
20	P34	VTR SERIAL DATA	IN	VTR DATA INPUT				
21	P33	JIG (L)	IN	Not used				
22	INT2	DECK POWER ON (L)	IN					
23	XIN	32.768kHZ CLOCK	IN	DATE/TIME CLOCK				
24	XOUT	32.768kHZ CLOCK	OUT					
25	INT1	POWER DOWN (L)	IN					
26	CNVss	GND	–					
27	RESET	RESET (L)	IN					
28	XIN	4MHz CLOCK	IN	SYSTEM CLOCK				
29	XOUT	4MHz CLOCK	OUT					
30	Vss	GND	–					
31	P17	FADER CTL-1	OUT	LOW WHEN TITLE FADE				
32	P16	FADER CTL-2	OUT	HIGH WHEN TITLE & COLOR FADE				
33	P15	OSD DATA LOAD (L)	OUT					
34	P14	FADER CTL-3	OUT	HIGH WHEN AUDIO FADE				
				W. BAL MODE	INDOOR	OUTDOOR	FL	AUTO
35	P13	W. BAL-2	OUT		L	L	H	H
36	P12	W. BAL-1	OUT		L	H	L	H
37	P11	TALLY LED ON (L)	OUT					
38	P10	AF CLOCK	OUT	SERIAL DATA TRANSFER CLOCK BETWEEN AF & CTL				
39	P07	TITLE RED	OUT	TITLE & FADER COLOR SELECT				
40	P06	TITLE GREEN	OUT					
41	P05	TITLE BLUE	OUT					
42	P04	TITLE REVERSE (L)	OUT					
43	P03	TITLE ON (H)	OUT					
44	P02	BLC ON (L)	OUT					
45	P01	TITLE MEMORY (L)	OUT					
46	P00	TITLE CLEAR (L)	OUT					
47	P27	FADER-7	OUT	FADE SIGNAL OUTPUT				
48	P26	FADER-6	OUT					
49	P25	FADER-5	OUT					
50	P24	FADER-4	OUT					
51	P23	FADER-3	OUT					
52	P22	FADER-2	OUT					
53	P21	FADER-1	OUT					
54	P20	FADER-0	OUT					
55	ϕ	NC	–					
56	P77	AF READY (H)	IN	FOR DATA TRANSFER BETWEEN AF & CTL				
57	P76	OSD BUSY (H)	IN	FOR OSD CONTROL				
58	P75	TRIGGER SW	IN	ON (L) / OFF (H)				
59	P74	AF DATA IN	IN	OP BLOCK DATA INPUT				
60	P73	IRIS – SW	IN	ON (L) / OFF (H)				
61	P72	IRIS + SW	IN	ON (L) / OFF (H)				
62	P71	TITLE MEMORY END (L)	IN					
63	P70	AF DATA OUT	OUT	CAMERA MODE DATA OUTPUT				
64	P67	OSD DATA-7	OUT	OSD DATA OUTPUT				
65	P66	OSD DATA-6	OUT					
66	P65	OSD DATA-5	OUT					
67	P64	OSD DATA-4	OUT					
68	P63	OSD DATA-3	OUT					
69	P62	OSD DATA-2	OUT					
70	P61	OSD DATA-1	OUT					
71	P60	OSD DATA-0	OUT					
72	NC	NC	–					
73	AVcc	5V	–					
74	Vref	5V	–					
75	AVss	GND	–					
76	P47	VISS SW	IN	ON (L) / OFF (H)				
77	P46	QUICK REVIEW SW	IN	ON (L) / OFF (H)				
78	P45	RETAKE – SW	IN	ON (L) / OFF (H)				
79	P44	RETAKE + SW	IN	ON (L) / OFF (H)				
80	P43	BLC SW	IN	ON (L) / OFF (H)				

Table 8-4 IC301 pin functions

8.5 TITLE MEMORY CONTROLLER ($\boxed{2}\boxed{3}$ CTL IC303) PIN FUNCTIONS

PIN No.	SIGNAL NAME	IN/OUT	CONTENTS
1	A6	OUT	S. RAM ADDRESS CONTROL
2	A7	OUT	
3	Vss	–	GND
4	NC	–	
5	A12	OUT	S. RAM ADDRESS CONTROL
6	A14	OUT	
7	NC	–	
8	NC	–	
9	BLUE BLANKING	OUT	BLANKING COLOR SIGNAL OUTPUT
10	GREEN BLANKING	OUT	
11	RED BLANKING	OUT	
12	COMP BLANKING	IN	H: BLANKING
13	FRING	OUT	H: FRING
14	KEY PULSE	OUT	H: TITLE, L: THROUGH
15	NC	–	
16	VD	IN	VERTICAL SYNC
17	HD	IN	HORIZONTAL SYNC
18	YHL	IN	TITLE Y SIGNAL
19	NC	–	
20	NTSC (L) / PAL (H)	IN	
21	NC	–	
22	Vss	–	GND
23	PHASE COMP OUT	OUT	312fH OSC PLL ERROR SIGNAL
24	NC	–	
25	OSC1	IN	312fH
26	OSC2	OUT	312fH
27	Vdd	–	5 V
28	NC	–	
29	NC	–	
30	NC	–	
31	KEY CTL	IN	H: FRING, L: NORMAL
32	POWER ON RESET	IN	L: RESET
33	Vss	–	GND
34	MEMORY END (L)	OUT	
35	MEMORY/CLEAR (L)	OUT	
36	MEMORY (L)	IN	
37	CLEAR (L)	IN	
38	REVERSE (L)	IN	KEY PULSE REVERSE COMMAND
39	NC	–	
40	TITLE ON (H)	IN	
41	REAL (H)	IN	LOW Fixed
42	PAGE2	IN	TITLE PAGE SELECT
43	PAGE1	IN	
44	NC	–	
45	Vss	–	GND
46	WRITE ENABLE (L)	IN	For S. RAN
47	RED IN	IN	TITLE COLOR SELECT
48	GREEN IN	IN	
49	BLUE IN	IN	
50	RESET (L)	IN	HIGH Fixed
51	NC	–	
52	S. RAM WE (L)	OUT	For S. RAM WRITE CONTROL
53	A13	OUT	S. RAM ADDRESS CONTROL
54	Vdd	–	5 V
55	A8	OUT	S. RAM ADDRESS CONTROL
56	A9	OUT	
57	A11	OUT	
58	NC	–	
59	S. RAM OE (L)	OUT	For S. RAM READ CONTROL
60	A10	OUT	S. RAM ADDRESS CONTROL
61	S. RAM CS (L)	OUT	For S. RAM READ/WRITE CONTROL
62	Vss	–	GND
63	NC	–	
64	IO4	IN/OUT	TITLE DATA
65	IO5	IN/OUT	
66	IO6	IN/OUT	
67	IO7	IN/OUT	
68	IO8	IN/OUT	
69	A1	OUT	S. RAM ADDRESS CONTROL
70	A0	OUT	
71	IO1	IN/OUT	TITLE DATA
72	Vdd	–	5 V
73	IO2	IN/OUT	TITLE DATA
74	IO3	IN/OUT	
75	NC	–	
76	A2	OUT	S. RAM ADDRESS CONTROL
77	A3	OUT	
78	A4	OUT	
79	NC	–	
80	A5	OUT	S. RAM ADDRESS CONTROL

Table 8-5 IC303 pin functions

8.6 WHITE BALANCE CPU (24 AW) PIN FUNCTIONS

PIN No.	SYMBOL	SIGNAL NAME	IN/OUT	CONTENTS				
1	ADC2	G	IN	For LOW LIGHT DETECT				
2	ADC1	B/G	IN	AW SENSOR INPUTS				
3	ADC0	R/G	IN					
4	VREF–	NC	–					
5	S/H2	ADSH	–	CAPACITOR for A/D CONV				
6	AVSS	GND	–					
7	P67	JIG ENABLE	OUT	For E.VR ADJUSTER				
8	P66	JIG BUSY	OUT					
9	P65	SERIAL SW	OUT	AF DATA IN (H) / E VR JIG MODE (L)				
10	P64	MEMORY CS	OUT	For EEPROM CONTROL				
11	P63	EVR CS	OUT	For E.VR & EEPROM CONTROL				
12	P62	EVR PE	OUT					
13	P61	MEMORY/EVR DC	OUT					
14	P60	MEMORY/EVR CLOCK	OUT					
15	EXI	GND	–					
16	P57	R OFFSET-3	OUT	AW SENSOR RED OFFSET				
17	P56	R OFFSET-2	OUT					
18	P55	R OFFSET-1	OUT					
19	P54	R OFFSET-0	OUT					
20	P53	B OFFSET-3	OUT	AW SENSOR BLUE OFFSET				
21	P52	B OFFSET-2	OUT					
22	P51	B OFFSET-1	OUT					
23	P50	B OFFSET-0	OUT					
24	RST–	RESET (L)	IN					
25	OSC1	8MHz	IN	SYSTEM CLOCK				
26	OSC2	8MHz	OUT					
27	Vss	GND	–					
28	P23	(H)	IN					
29	P27	NC	–					
30	P26	VD	IN	VERTICAL SYNC				
31	P25	(H)	IN					
32	P24	VD	IN	VERTICAL SYNC				
33	P22	(H)	–					
34	P21	(H)	–					
35	P20	(H)	–					
36	P07	AF/JIG CLOCK	IN	For E.VR ADJUSTER & AF DATA TRANSFER				
37	P06	AF/JIG DATA IN	IN					
38	P05	JIG DATA OUT	OUT					
39	P01	NC	–					
40	P00	NC	–					
41	P47	Y CORRECT (L)	OUT	OUTDOOR (L)				
42	P46	NC	–					
43	P45	NC	–					
44	P44	W DET	OUT	YL DARK CLIP 30% (H) / 0% (L)				
45	P43	GAIN D	OUT	LOW Fixed				
46	P42	GAIN A	OUT	YL DARK CLIP 50% (H) / 30% (L)				
			–	64-PIN IN	R-Y	B-Y	YL	
47	P41	B	OUT		L	H	X	
48	P40	A	OUT		L	L	H	
			–	WB MODE	INDOOR	OUTDOOR	FL	AUTO
49	P77	WHITE BAL SW-B	IN		L	LH	H	H
50	P76	WHITE BAL SW-A	IN		L	H	L	H
51	P75	CLOSED LOOP SW	IN					
52	P74	JIG MODE SW	IN	LOW: E.VR JIG MODE				
53	P73	JIG RESERVED	IN	HIGH Fixed				
54	P72	(H)	–					
55	P71	(H)	–					
56	P70	MEMORY/EVR DI	IN					
57	VDD	5V	–					
58	AVDD	5V	–					
59	VREF+	4V	–	For A/D, D/A CONV				
60	DAC1	B GAIN	OUT	B GAIN CTL VOLTAGE				
61	S/H1	DASHI	–	S/H CAPACITOR for DAC1				
62	DAC0	R GAIN	OUT	R GAIN CTL VOLTAGE				
63	S/H0	DASHO	–	S/H CAPACITOR for DAC0				
64	ADC3	R-Y/Y/YL	IN	CLOSED LOOP COMP SIGNAL				

Table 8-6 IC402 pin functions

8.7 AF CPU (25 AF IC502) PIN FUNCTIONS

PIN No.	SYMBOL	SIGNAL NAME	IN/OUT	CONTENTS
1	ADC2	ZOOM ENCODER	IN	DETECTING ZOOM LENS POSITION
2	ADC1	IRIS SENSOR	IN	DETECTING IRIS SIZE
3	ADC0	AF SIGNAL	IN	DETECTING Y SIGNAL CONTRAST
4	VREF–	1V	–	
5	S/H2	ADSH	–	S/H CAPACITOR for A/D CONV.
6	AVSS	GND	–	
7	P67	MANUAL FOCUS RESET	OUT	RESET (L) AT 1 V INTERVALS
8	P66	AF MOTOR PS	OUT	POWER SAVE STOP (H)
9	P65	IRIS DUMPER CTL	OUT	AUTO (L) / MANUAL (H)
10	P64	NC	–	
11	P63	AF MOTOR FAR	OUT	AF MOTOR DRIVE (L)
12	P62	AF MOTOR NEAR	OUT	
13	P61	AF PROCESSOR CLK	OUT	AF PROCESSOR CONTROL DATA
14	P60	AF PROCESSOR DATA	OUT	
15	EXI	GND	–	
16	P57	ZOOM WIDE (H)	OUT	ZOOM MOTOR CONTROL
17	P56	ZOOM TELE (H)	OUT	
18	P55	∞ SENSOR ON (L)	OUT	
19	P54	MANUAL FOCUS ON (L)	OUT	
20	P53	CTL READY	–	
21	P52	SSG RESET (L)	OUT	ELECTRONIC SHUTTER MODE DATA OUTPUT
22	P51	SSG CLOCK	OUT	
23	P50	SSG DATA	OUT	
24	RST–	RESET (L)	IN	
25	OSC1	8MHz	IN	SYSTEM CLOCK
26	OSC2	8MHz	OUT	
27	Vss	GND	–	
28	P23	NC	–	
29	P27	HD	IN	HORIZONTAL SYNC
30	P26	NC	–	
31	P25	NC	–	
32	P24	VD	IN	VERTICAL SYNC
33	P22	AF WINDOW PULSE	OUT	Y CONTRAST SIGNAL BLANKING PULSE
34	P21	FL FLICKER PULSE	IN	DETECTING FL FLICKER
35	P20	HD	IN	HORIZONTAL SYNC
36	P07	CTL CLOCK	OUT	CTL-AF DATA TRANSFER CTL-AF: MODE DATA INPUT AF-CTL: OP BLOCK DATA OUTPUT
37	P06	CTL-AF DATA	IN	
38	P05	AF-CTL DATA	OUT	
39	P01	NC	–	
40	P00	NC	–	
41	P47	ADJUST (L)	IN	
42	P46	ZOOM SPEED UP (L)	IN	
43	P45	ZOOM WIDE SW ON (L)	IN	
44	P44	ZOOM TELE SW ON (L)	IN	
45	P43	MANUAL +2 (L)	IN	Not used
46	P42	MANUAL +1 (L)	IN	MANUAL FOCUS FAR (L) AT 1V INTERVALS
47	P41	MANUAL –1 (L)	IN	MANUAL FOCUS NEAR (L) AT 1V INTERVALS
48	P40	MANUAL –2 (L)	IN	Not used
49	P77	V. REC	IN	
50	P76	SSG READY (L)	IN	
51	P75	(H)	–	
52	P74	(H)	–	
53	P73	(H)	–	
54	P72	(H)	–	
55	P71	(H)	–	
56	P70	(H)	–	
57	VDD	LOGIC 5V	–	
58	AVDD	ANALOG 5V	–	
59	VREF +	4V	–	For A/D, D/A CONV.
60	DAC1	IRIS CTL	OUT	For EXPOSURE COMPENSATION
61	S/H1	DASH1	–	S/H CAPACITOR for DAC1
62	DAC0	ZOOM SPEES	OUT	ZOOM SPEED SELECT
63	S/H0	DASH0	–	S/H CAPACITOR for DAC0
64	ADC3	∞SENSOR	IN	MASTER LENS ∞POSITION DETECT

Table 8-7 IC502 pin functions

ADDITION

MODEL GR-303U

SECTION 5
SCHEMATIC DIAGRAMS AND CIRCUIT BOARDS

SECTION 7
ELECTRICAL PARTS LIST

This is an addition to the No. 86148 Service Manual for the model GR-303U.

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No. 86148B
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PARTS REPLACEMENT NOTES

Ref No.	Previous Part No.	New Part No.	Part Name. Description
	– VIDEO BOARD ASSEMBLY <21> –		
PWBA	YB20435A-01	YB20435A-02	VIDEO BOARD ASSY
IC108	–	or BU4053BF	IC
R192	–	NRSA63J-471N	RESISTOR
DL101	YU41657	YU41657	DELAY LINE
	–	or PELN0583	DELAY LINE
DL102	YU41657	YU41657	DELAY LINE
	–	or PELN0583	DELAY LINE
	– AW BOARD ASSEMBLY <24> –		
PWBA	YB20384A	YB20384B	AUTO WHITE BOARD ASSY
IC401	T2368FAP	AN2368FAP	IC
IC410	LM324DB	–	IC
IC411	LM324DB	–	IC
IC412	TC4052BF	–	IC
IC413	TC7S32F	–	IC
D402	MA141K	–	DIODE
R401	NRSA63J-0R0A	NRSA63J-183N	RESISTOR
R403	–	NRSA63J-682N	RESISTOR
R405	NRSA63J-0R0A	–	RESISTOR
R446	NRSA63J-0R0A	–	RESISTOR
R447	–	NRSA63J-0R0A	RESISTOR
R448	–	NRSA63J-0R0A	RESISTOR
R449	–	NRSA63J-0R0A	RESISTOR
R450	NRSA63J-0R0A	–	RESISTOR
R451	NRSA63J-223N	–	RESISTOR
R452	NRSA63J-273N	–	RESISTOR
R453	NRSA63J-163N	–	RESISTOR
R454	NRSA63J-333N	–	RESISTOR
R455	–	NRSA63J-473N	RESISTOR
R456	NRSA63J-104N	–	RESISTOR
R457	NRSA63J-223N	–	RESISTOR
R458	NRSA63J-562N	–	RESISTOR
R459	NRSA63J-562N	–	RESISTOR
R460	NRSA63J-303N	–	RESISTOR
R461	NRSA63J-472N	–	RESISTOR
R462	NRSA63J-472N	–	RESISTOR
R463	NRSA63J-303N	–	RESISTOR
R464	NRSA63J-472N	–	RESISTOR
R465	NRSA63J-472N	–	RESISTOR
R466	NRSA63J-472N	–	RESISTOR
R467	NRSA63J-472N	–	RESISTOR
R468	NRSA63J-303N	–	RESISTOR
R469	NRSA63J-473N	–	RESISTOR
R470	NRSA63J-473N	–	RESISTOR
R471	NRSA63J-473N	–	RESISTOR
C414	NCB31EK-103A	–	CAPACITOR
C415	NEE21DM-474R	NEE21AM-225RS	TANTAL CAPACITOR
C416	NEE21DM-474R	NEE21AM-225RS	TANTAL CAPACITOR
C417	NEE21DM-474R	NEE21AM-225RS	TANTAL CAPACITOR
C418	NEE21DM-474R	–	TANTAL CAPACITOR
C438	–	NEE21AM-225RS	TANTAL CAPACITOR
C447	NCB31EK-103A	–	CAPACITOR
C448	NCB31EK-103A	–	CAPACITOR
	– AF BOARD ASSEMBLY <25> –		
PWBA	YB20364D-01	YB20452D-01	AUTO FOCUS BOARD ASSY
IC501	–	or JCY0007-1	IC
C507	NEH11CM-476N	NEE21CM-336RU	TANTAL CAPACITOR
	or NEH31CM-476N	–	E CAPACITOR
⚠ X501	PEVB0362	–	RESONATOR, OSC501

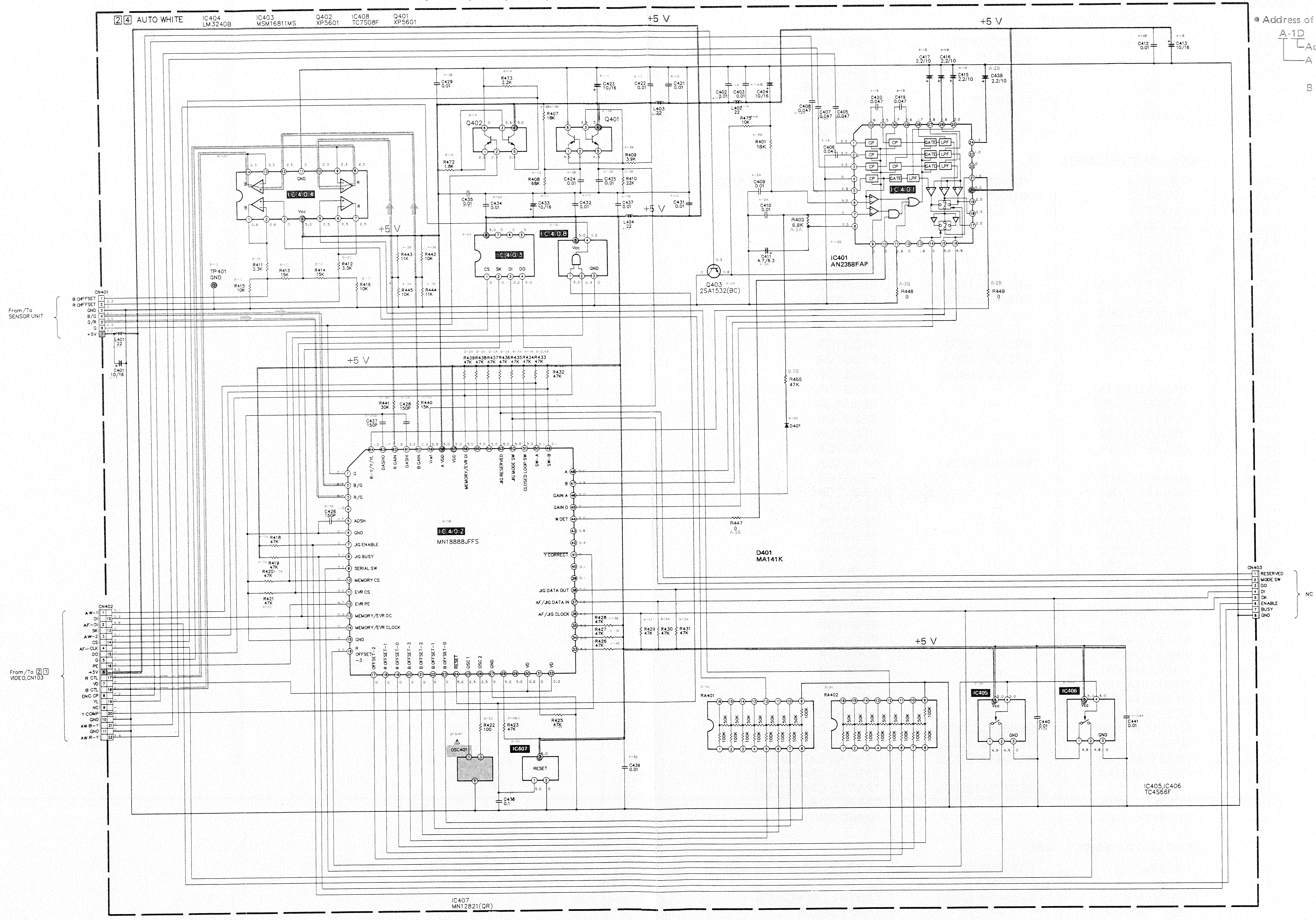
5.16 AUTO WHITE SCHEMATIC DIAGRAM

● Shaded (▨) parts are critical for safety.
Replace only with specified part numbers.

● Voltage : Measured as the color bar pattern which lighted up brightly is shot in the rehersal mode.

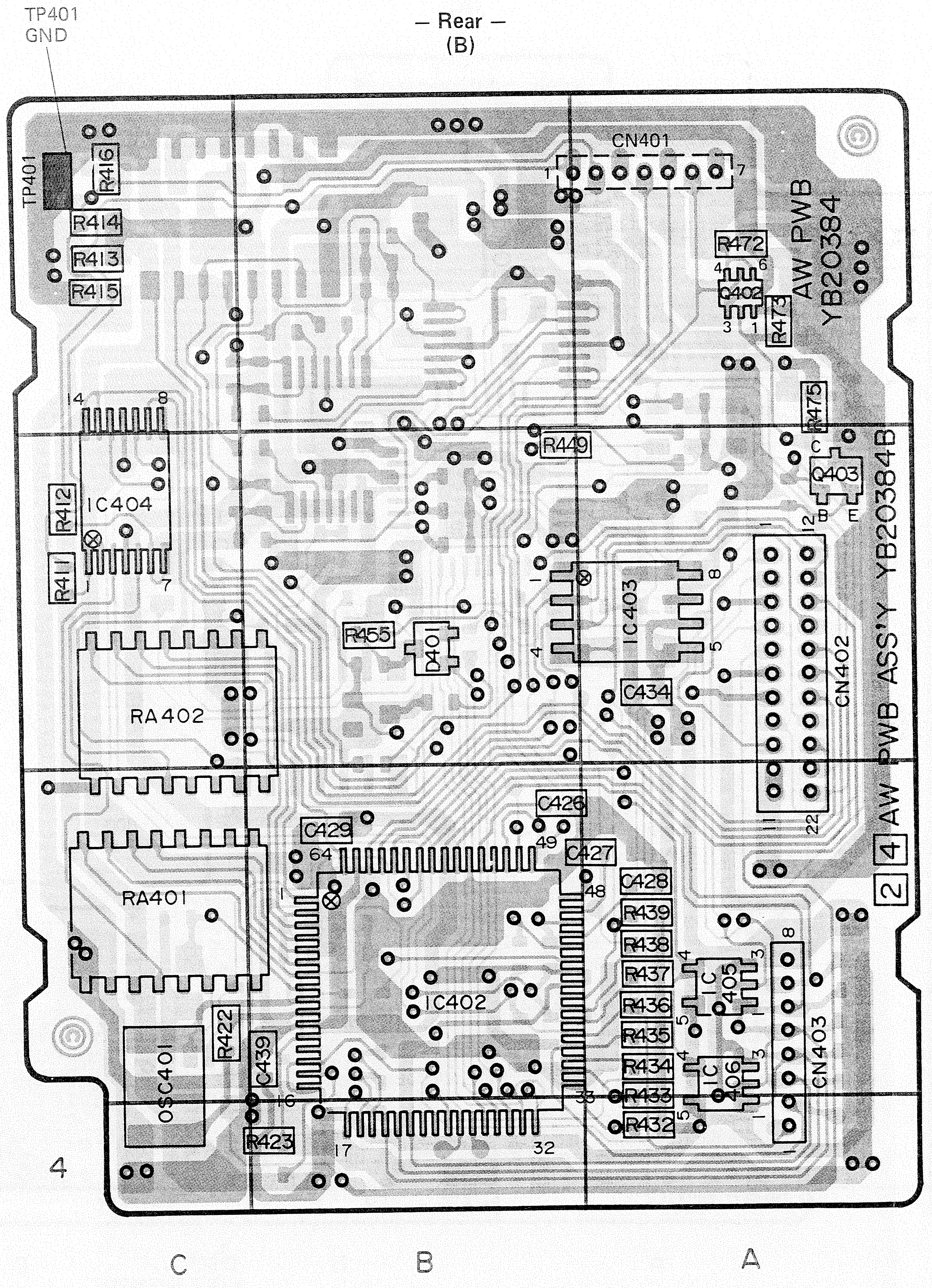
● SIGNAL PATH
⇒ AW SIGNAL

● Address of chip parts
A-1D
└Address
└A : Discrete parts side
B : Chip parts side

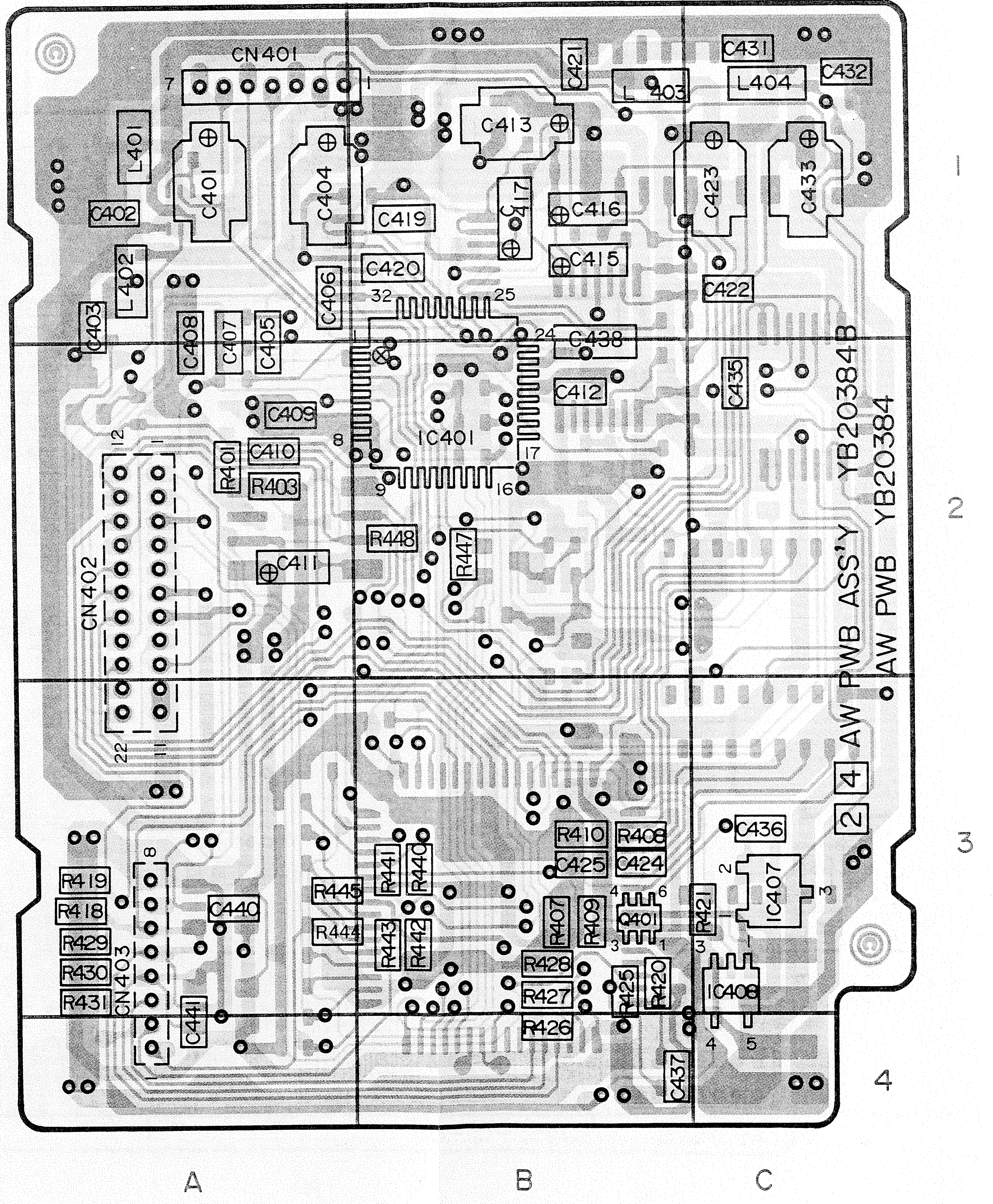

2 4 AUTO WHITE
IC404 LM324DB
IC403 MSM16811MS
Q402 XP5601
IC408 TC7S08F
Q401 XP5601
+5 V
From/To SENSOR UNIT
CN401
B OFFSET 1
R OFFSET 2
GND 3
B/G 4
G/R 5
G 6
+5V 7
L401 22
C401 10/16
TP401 GND
R411 3.3K
R413 15K
R414 15K
R412 3.3K
R415 10K
R416 10K
R443 11K
R442 10K
R445 10K
R444 11K
C429 0.01
R473 2.2K
R472 1.8K
R407 18K
R409 3.9K
R408 68K
R410 22K
C423 10/16
C422 0.01
C421 0.01
C424 0.01
C425 0.01
C435 0.01
C434 0.01
C433 10/16
C432 0.01
C437 0.01
C431 0.01
L403 22
L404 22
C402 0.01
C403 0.01
C404 10/16
L402 22
R475 10K
R401 18K
C409 0.01
C410 0.01
R403 6.8K
C411 4.7/6.3
Q403 2SA1532(BC)
C408 0.047
C407 0.047
C405 0.047
C406 0.047
C417 2.2/10
C416 2.2/10
C415 2.2/10
C438 2.2/10
C420 0.047
C419 0.047
C412 0.01
C413 10/16
CP
GATE
LPF
IC401 AN2368FAP
R448 0
R449 0
R455 47K
D401
D401 MA141K
R447 0
IC404
IC403
CS SK DI DO
IC408
Vcc
GND
R439 R438 R437 R436 R435 R434 R433 47K 47K 47K 47K 47K 47K 47K
R432 47K
R441 30K
C428 150P
R440 15K
C427 150P
C426 150P
R418 47K
R419 47K
R420 47K
R421 47K
IC402 MN18888JFFS
G
B/G
R/G
ADSH
GND
JIG ENABLE
JIG BUSY
SERIAL SW
MEMORY CS
EVR CS
EVR PE
MEMORY/EVR DC
MEMORY/EVR CLOCK
GND
R OFFSET -3
R-Y/Y/YL
DASHO
R GAIN
DASHI
B GAIN
Vref
A VDD
VDD
MEMORY/EVR DI
JIG RESERVED
JIG MODE SW
CLOSED LOOP SW
SW-A
SW-B
A
B
GAIN A
GAIN D
W DET
Y CORRECT
JIG DATA OUT
AF/JIG DATA IN
AF/JIG CLOCK
OFFSET-2
R OFFSET-1
R OFFSET-0
B OFFSET-3
B OFFSET-2
B OFFSET-1
B OFFSET-0
RESET
OSC 1
OSC 2
GND
VD
VD
R428 47K
R427 47K
R426 47K
R429 47K
R430 47K
R431 47K
R422 100
R423 47K
R425 47K
OSC401
IC407
RESET
C436 0.1
C439 0.01
From/To 2 1 VIDEO, CN103
CN402
AW-1 1
DI 12
AF-DI 2
SK 13
AW-2 3
CS 14
AF-CLK 4
DO 15
G 5
PE 16
+5V 6
R CTL 17
VD 7
B CTL 18
ENC CP 8
YL 19
NC 9
Y COMP 20
GND 10
AW B-Y 21
GND 11
AW R-Y 22
CN403
1 RESERVED
2 MODE SW
3 DO
4 DI
5 CK
6 ENABLE
7 BUSY
8 GND
NC
+5 V
RA401
RA402
50K
100K
IC405
IC406
Vcc
GND
C440 0.01
C441 0.01
IC405, IC406 TC4S66F
IC407 MN12821(QR)
6
5
4
3
2
1
A
B
C
E
F
G
H

5.17 AUTO WHITE CIRCUIT BOARD

– Rear –
(B)

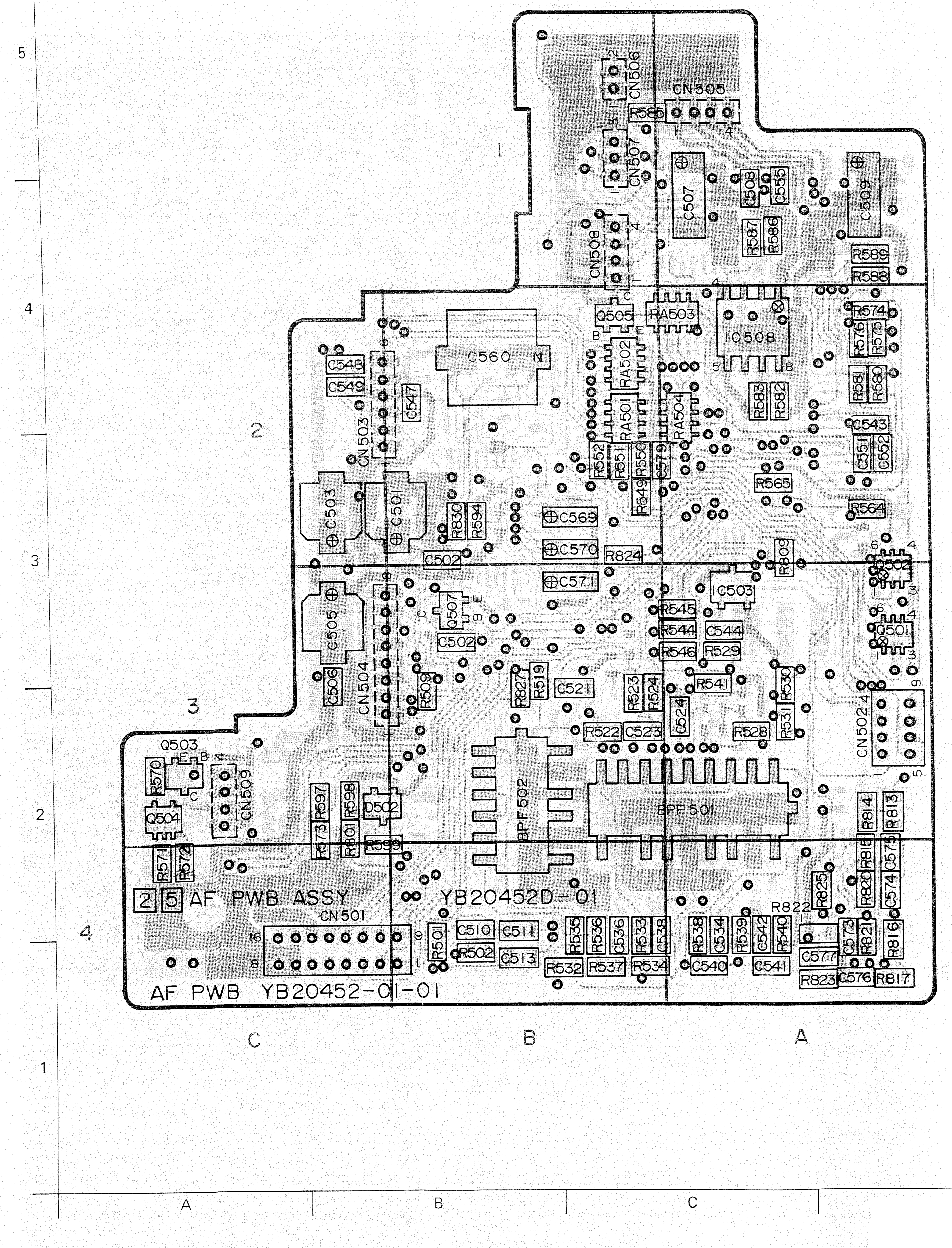

TP401
GND
TP401
R416
R414
R413
R415
CN401
R472
Q402
R473
R475
AW PWB
YB20384
IC404
R412
R411
R449
Q403
R455
D401
IC403
C434
CN402
AW PWB ASS'Y YB20384B
RA402
C426
C429
C427
C428
RA401
R439
R438
R437
R436
R435
R434
R433
R432
IC402
IC405
IC406
CN403
R422
C439
OSC401
R423
2
4
1
2
3
4
C
B
A

– Front –
(A)

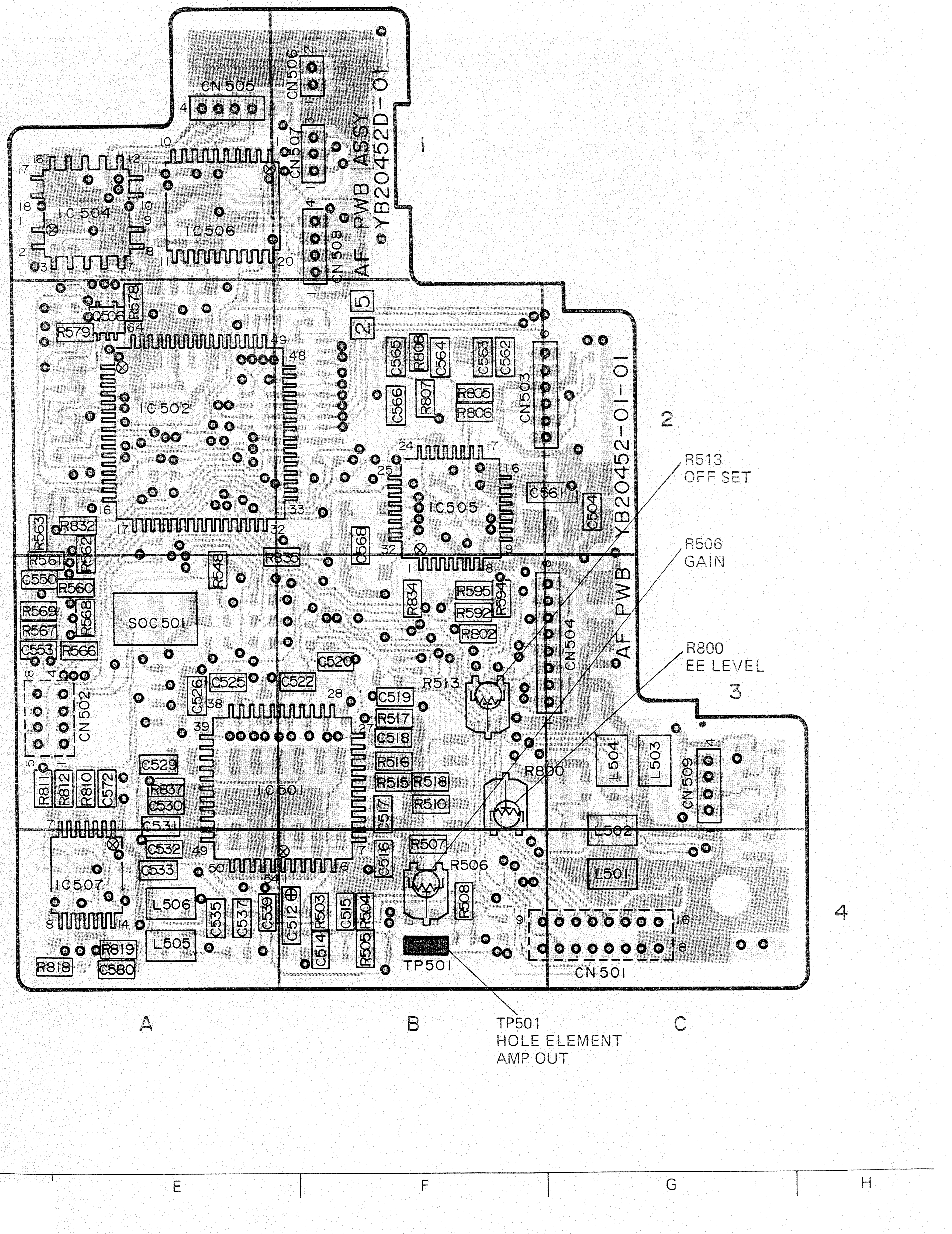

CN401
C421
C431
L403
L404
C432
L401
C401
C404
C413
C417
C416
C415
C423
C433
C402
C419
C420
L402
C406
C422
C403
C408
C407
C405
C438
C412
C435
C409
C410
R401
R403
IC401
CN402
R448
R447
C411
AW PWB ASS'Y YB20384B
AW PWB YB20384
C436
R410
R408
C425
C424
IC407
R419
R418
R429
R430
R431
CN403
C440
R445
R444
R441
R440
R443
R442
R407
R409
Q401
R421
R428
R427
R426
R425
R420
IC408
C441
C437
2
4
1
2
3
4
A
B
C

5.21 AUTO FOCUS CIRCUIT BOARD

— Rear —
(B)


6
5
4
3
2
1
1
2
3
4
CN506
CN505
CN507
CN508
R585
C507
C508
C555
C509
R587
R586
R589
R588
Q505
RA503
IC508
R574
R576
R575
C560
C548
C549
C547
CN503
RA502
RA501
RA504
R583
R582
R581
R580
C543
C551
C552
R552
R551
R550
C579
R549
R565
R564
C503
C501
R830
R594
C569
C570
C571
R824
C502
Q507
R809
IC503
Q502
Q501
C505
CN504
C506
R509
R545
R544
R546
C544
R529
R541
R827
R519
C521
R523
R524
C524
R530
R531
R528
CN502
R522
C523
Q503
Q504
R570
CN509
R597
R598
D502
R573
R801
R599
BPF502
BPF501
R814
R813
R815
R575
R820
C574
R571
R572
R825
2 5 AF PWB ASSY
YB20452D-01
CN501
R822
C510
C511
R535
R536
C536
R533
C538
R538
C534
R539
C542
R540
R501
R502
C513
R532
R537
R534
C540
C541
C577
C573
R821
R816
R823
C576
R817
AF PWB YB20452-01-01
C
B
A
A
B
C

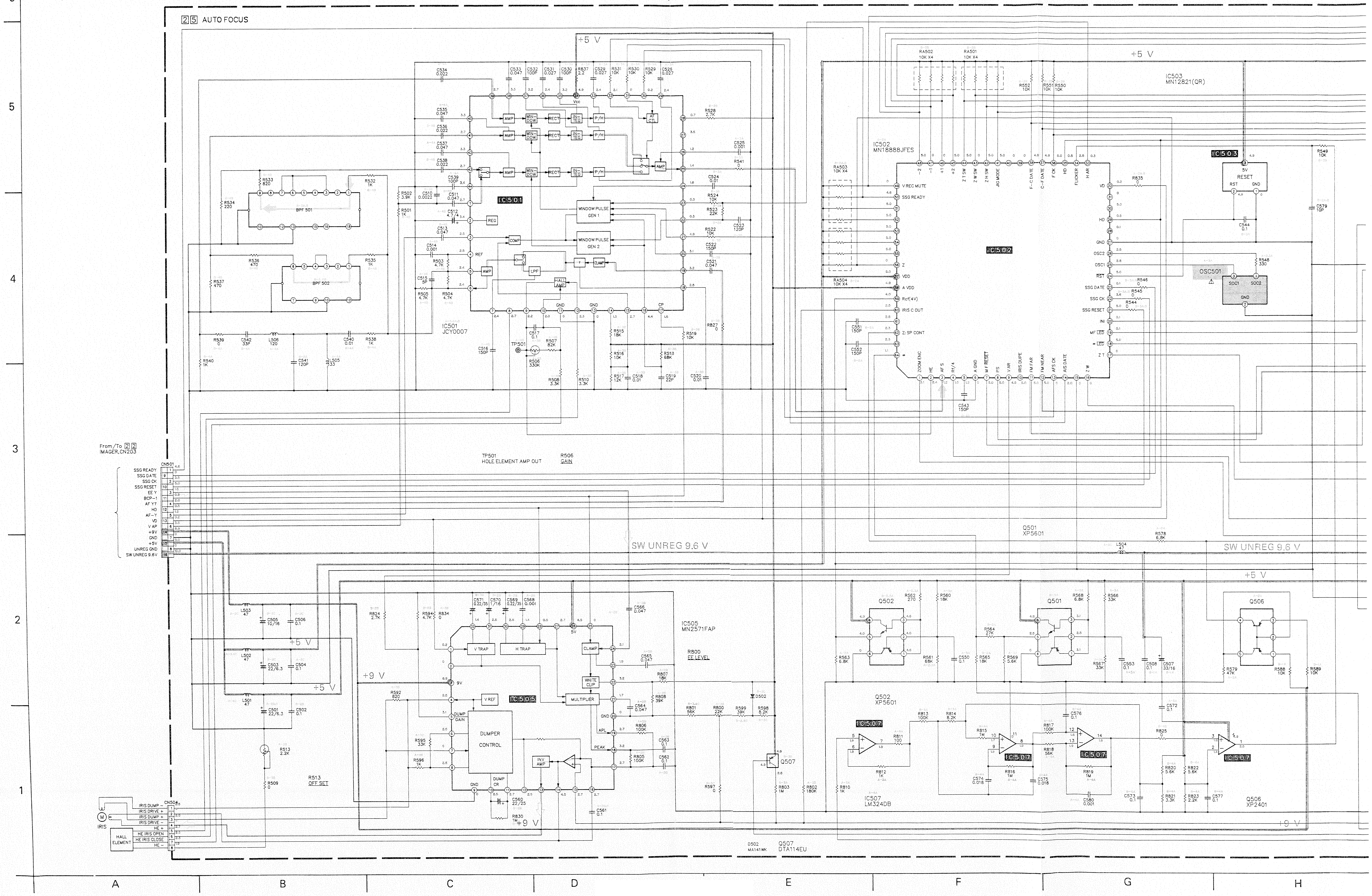
— Front —
(A)


CN505
CN506
CN507
AF PWB ASSY YB20452D-01
IC504
IC506
CN508
R578
Q506
R579
2 5
IC502
C565
R808
C564
C563
C562
C566
R807
R805
R806
CN503
IC505
C561
C504
R563
R832
R561
R562
C550
R560
R569
R568
R567
C553
R566
SOC501
R548
R830
C568
R834
R595
R594
R592
R802
CN504
AF PWB YB20452-01-01
C520
C525
C526
C522
CN502
C519
R517
C518
R516
R515
R518
R510
R513
R800
L504
L503
CN509
C529
R837
C530
C531
C532
C533
R811
R812
R810
C572
IC501
C517
C516
R507
R506
L502
L501
IC507
L506
L505
C535
C537
C539
C512
R503
C515
R504
C514
R505
R508
TP501
CN501
R818
R819
C580
R513
OFF SET
R506
GAIN
R800
EE LEVEL
TP501
HOLE ELEMENT
AMP OUT
1
2
3
4
A
B
C
E
F
G
H

5.20 AUTO FOCUS SCHEMATIC DIAGRAM

● Shaded (▨) parts are critical for safety.
Replace only with specified part numbers.

● Voltage : Measured as the color bar pattern which lighted up brightly is shot in the rehersal mode.



6
5
4
3
2
1
A
B
C
D
E
F
G
H
25 AUTO FOCUS
+5 V
IC501
JCY0007
IC502
MN18888JFES
IC503
MN12821(QR)
IC505
MN2571FAP
IC507
LM324DB
Q501
XP5601
Q502
XP5601
Q506
XP2401
Q507
DTA114EU
D502
MA141WK
BPF 501
BPF 502
AMP
WIN-DOW
RECT
IN-TEG
P/H
AF CTL
REG
COMP
REF
LPF
HALL AMP
CLAMP
WINDOW PULSE GEN 1
WINDOW PULSE GEN 2
V TRAP
H TRAP
VREF
WHITE CLIP
MULTIPLIER
DUMPER CONTROL
INV AMP
5V RESET
OSC501
TP501
HOLE ELEMENT AMP OUT
R506
GAIN
R800
EE LEVEL
R513
OFF SET
SW UNREG 9.6 V
+9 V
From/To 22
IMAGER,CN203
CN501
SSG READY
SSG DATE
SSG CK
SSG RESET
EE Y
BCP-1
AF YT
HD
AF-Y
VD
V AP
+9V
GND
+5V
UNREG GND
SW UNREG 9.6V
CN504
IRIS DUMP -
IRIS DRIVE +
IRIS DUMP +
IRIS DRIVE -
HE +
HE IRIS OPEN
HE IRIS CLOSE
HE -
IRIS
HALL ELEMENT

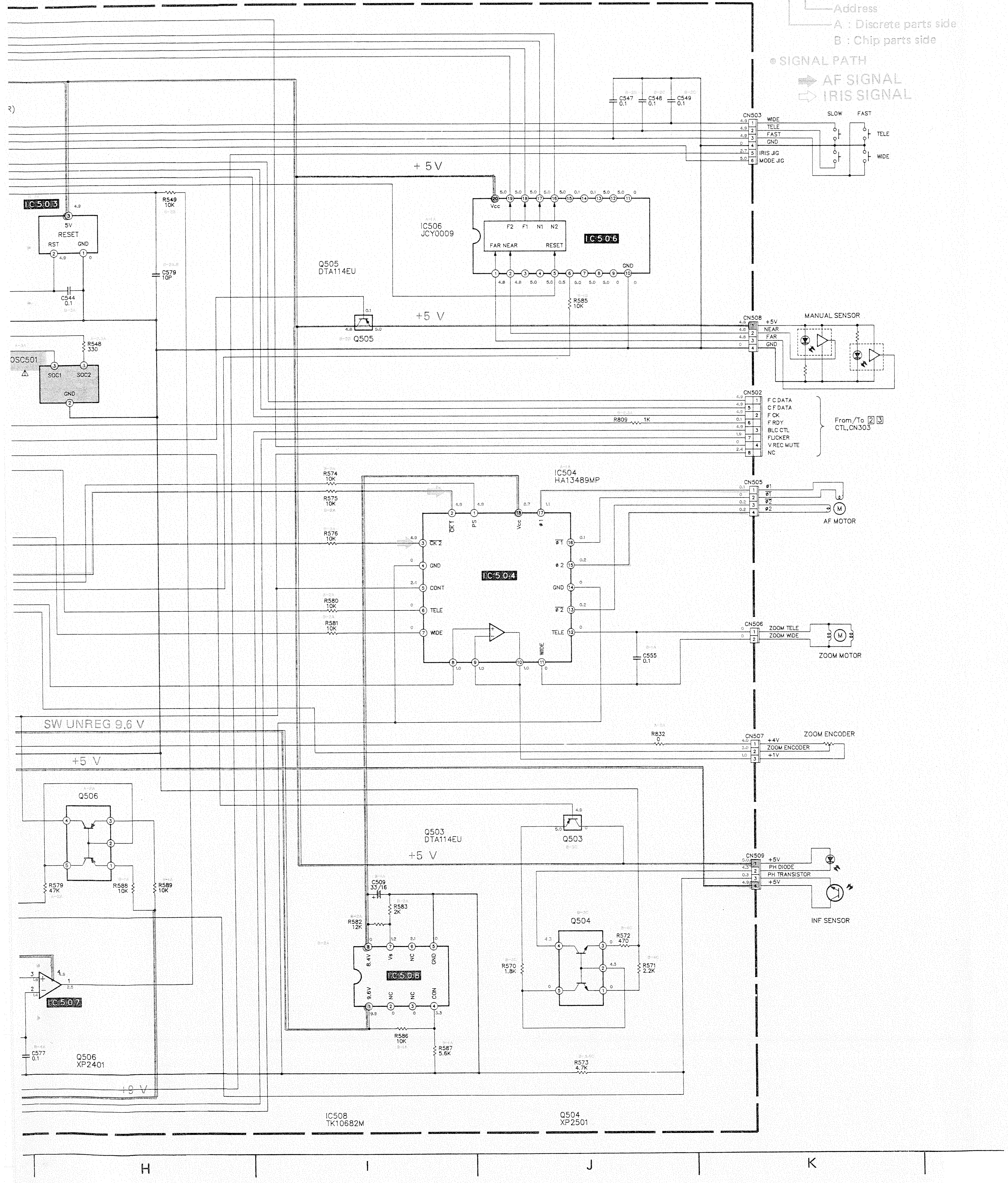
attern which lighted
ersal mode.

- Address of chip parts

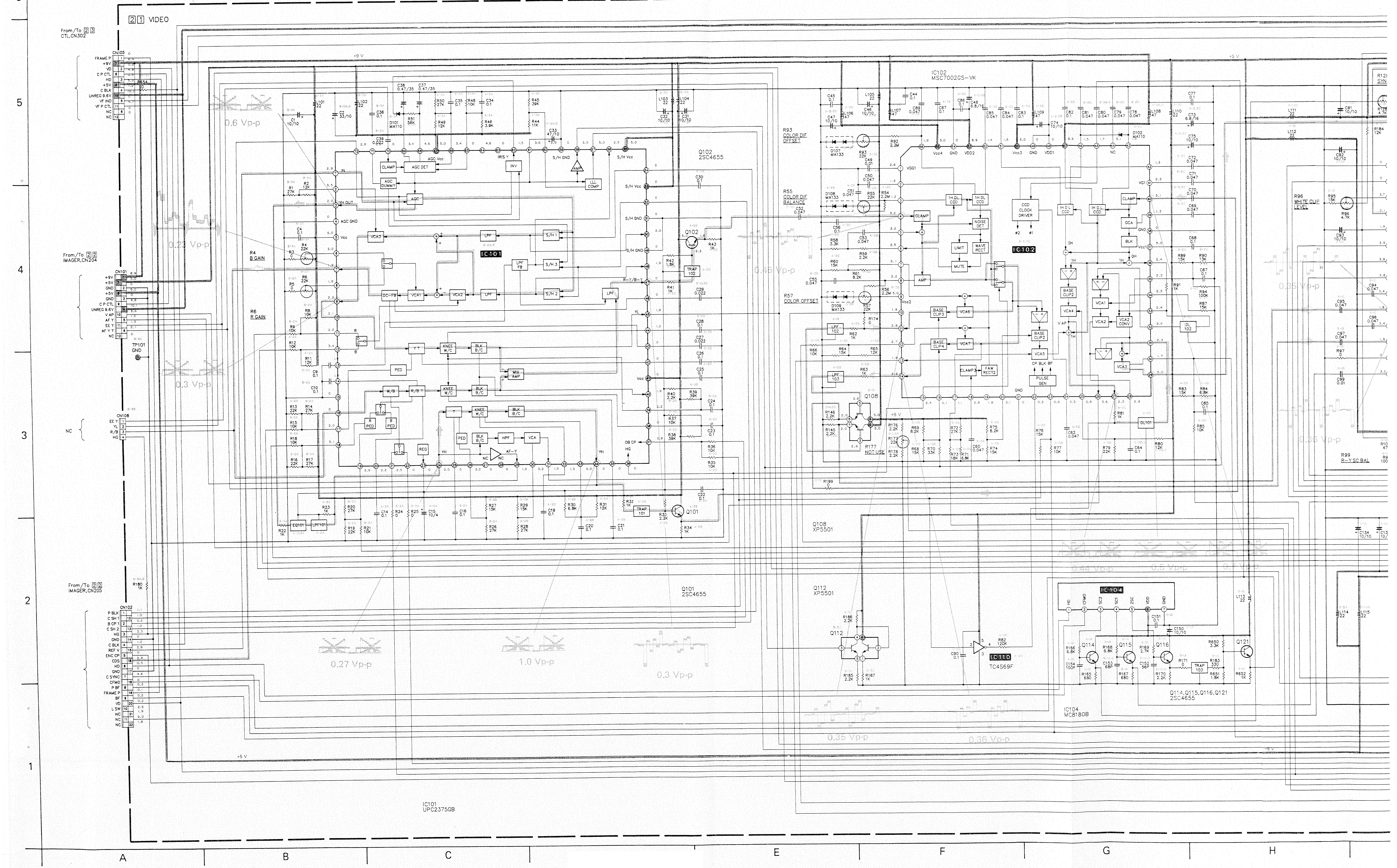
A-1D
Address
A : Discrete parts side
B : Chip parts side

- SIGNAL PATH

AF SIGNAL
IRIS SIGNAL


IC503
5V
RESET
RST
GND
R549 10K
C579 10P
C544 0.1
R548 330
OSC501
SOC1
SOC2
GND
+ 5V
IC506
JCY0009
IC506
Vcc
F2
F1
N1
N2
FAR NEAR
RESET
GND
C547 0.1
C548 0.1
C549 0.1
Q505
DTA114EU
R585 10K
+5 V
Q505
CN503
WIDE
TELE
FAST
GND
IRIS JIG
MODE JIG
SLOW
FAST
TELE
WIDE
CN508
+5V
NEAR
FAR
GND
MANUAL SENSOR
CN502
F.C DATA
C.F DATA
F.CK
F.RDY
BLC CTL
FLICKER
V.REC MUTE
NC
R809 1K
From/To 2 3
CTL,CN303
R574 10K
R575 10K
R576 10K
R580 10K
R581 10K
IC504
HA13489MP
CRT
PS
Vcc
CK 2
GND
CONT
TELE
WIDE
IC504
φ1
φ2
GND
φ2
TELE
WIDE
CN505
AF MOTOR
C555 0.1
CN506
ZOOM TELE
ZOOM WIDE
ZOOM MOTOR
SW UNREG 9.6 V
+5 V
R632
CN507
+4V
ZOOM ENCODER
+1V
ZOOM ENCODER
Q506
R579 47K
R586 10K
R589 10K
Q503
DTA114EU
+5 V
Q503
CN509
+5V
PH DIODE
PH TRANSISTOR
+5V
INF SENSOR
C509 33/16
R582 12K
R583 2K
8.4V
Vs
NC
GND
IC508
9.6V
NC
NC
CON
R586 10K
R587 5.6K
Q504
R570 1.8K
R572 470
R571 2.2K
R573 4.7K
IC507
C577 0.1
Q506
XP2401
+9 V
IC508
TK10682M
Q504
XP2501
H
I
J
K

5.22 VIDEO SCHEMATIC DIAGRAM



22 1 VIDEO
From/To 2 3 CTL,CN302
CN103
FRAME P
+9V
VD
C P CTL
HD
+5V
C BLK
UNREG 9.6V
VF IND
VF P CTL
NC
NC
From/To 2 2 IMAGER,CN204
CN101
+9V
+5V
GND
+5V
GND
C P CTL
UNREG 9.6V
V AP
AF Y
EE Y
AF Y T
NC
TP101 GND
CN108
EE Y
YL
R/B
HG
NC
From/To 2 2 IMAGER,CN203
CN102
P BLK
C SH 1
B CP 1
C SH 2
HG
GND
C BLK
REF V
ENC CP
CDS
HD
GND
C SYNC
CFMO
P BF
FRAME P
BF
VD
L SW
NC
NC
NC
+9 V
+5 V
0.6 Vp-p
0.23 Vp-p
0.3 Vp-p
0.27 Vp-p
1.0 Vp-p
0.3 Vp-p
0.45 Vp-p
0.35 Vp-p
0.44 Vp-p
0.5 Vp-p
0.7 Vp-p
0.36 Vp-p
R4 B GAIN
R6 R GAIN
IC101
AGC
CLAMP
AGC DET
AGC DUMMY
VCA3
VCA1
VCA2
DC-FB
LPF
LPF FB
S/H 1
S/H 2
S/H 3
Y T
KNEE W/C
BLK B/C
MIX AMP
PED
W/B
R/B-Y
REG
HPF
VCA
LLL COMP
AMP
INV
IRIS Y
S/H GND
S/H Vcc
Q102 2SC4655
Q101 2SC4655
TRAP 102
TRAP 101
EQ101
LPF101
IC101 UPC2375GB
IC102 MSC7002GS-VK
R93 COLOR DIF OFFSET
R55 COLOR DIF BALANCE
R57 COLOR OFFSET
D107 MA133
D108 MA133
D109 MA133
D101 MA110
D102 MA110
IC102
1H DL CCD
NOISE DET
LIMIT
WAVE RECT
MUTE
CCD CLOCK DRIVER
BASE CLIP1
BASE CLIP2
BASE CLIP3
BASE CLIP4
VCA4
VCA5
VCA6
VCA7
PULSE GEN
CLAMP3
FAW RECT2
GCA
BLK
VCA2 CONV
DL 102
DL101
LPF 102
LPF 103
Q108
R177 NOT USE
Q108 XP5501
Q112 XP5501
Q112
IC110
TC4S69F
IC104
HD
CFMO
SC2
SC1
ESC
VDD
GND
Q114
Q115
Q116
Q121
TRAP 103
Q114,Q115,Q116,Q121 2SC4655
IC104 MC8180B
R96 WHITE CLIP LEVEL
R99 R-Y SC BAL
A
B
C
E
F
G
H
1
2
3
4
5
6

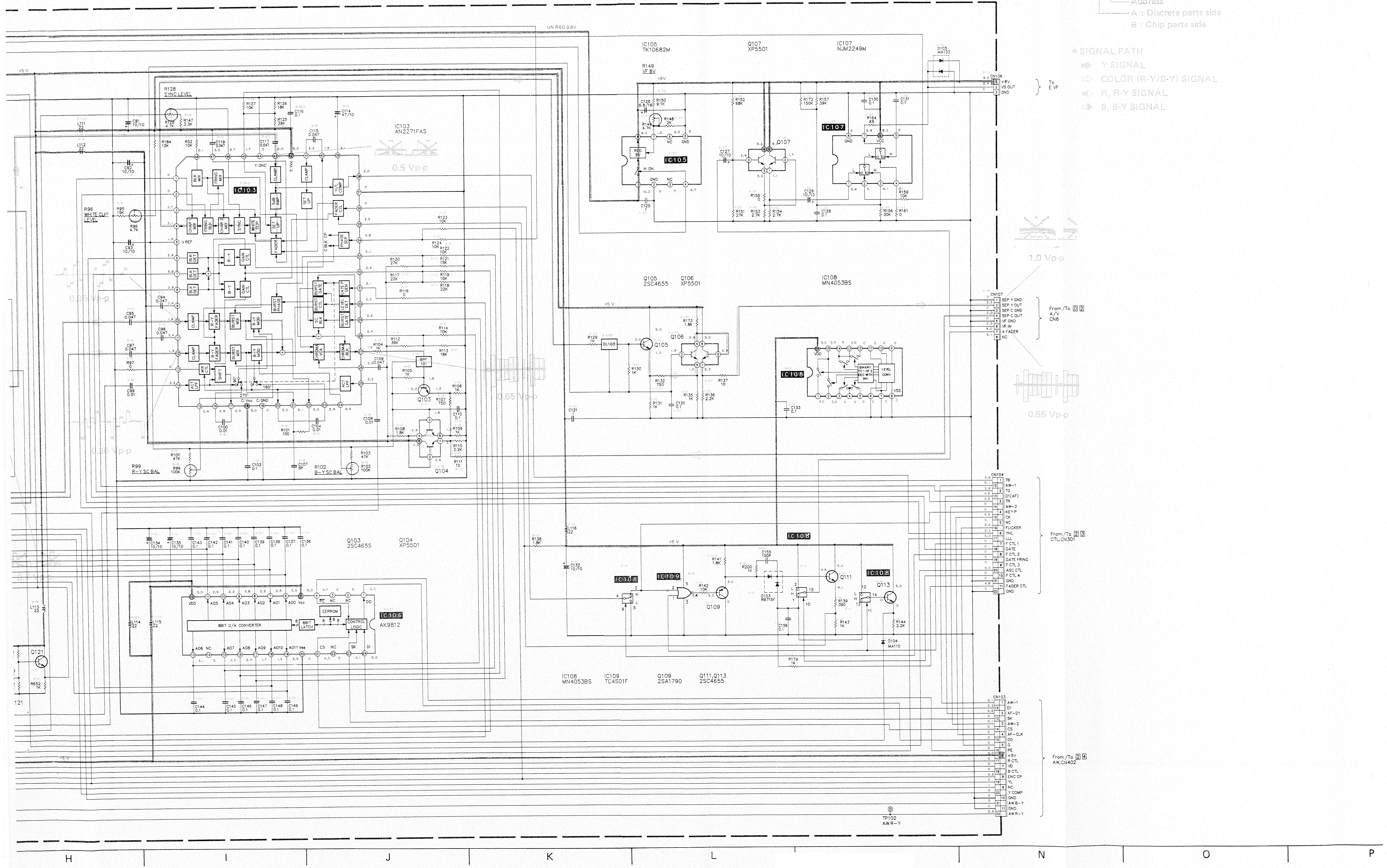
● Voltage : Measured as the color bar pattern which lighted up brightly is shot in the rehersal mode.

● Waveform : Measured as the gray scale or color bar pattern which light up brightly is shot in the rehersal mode.

● Address of chip parts

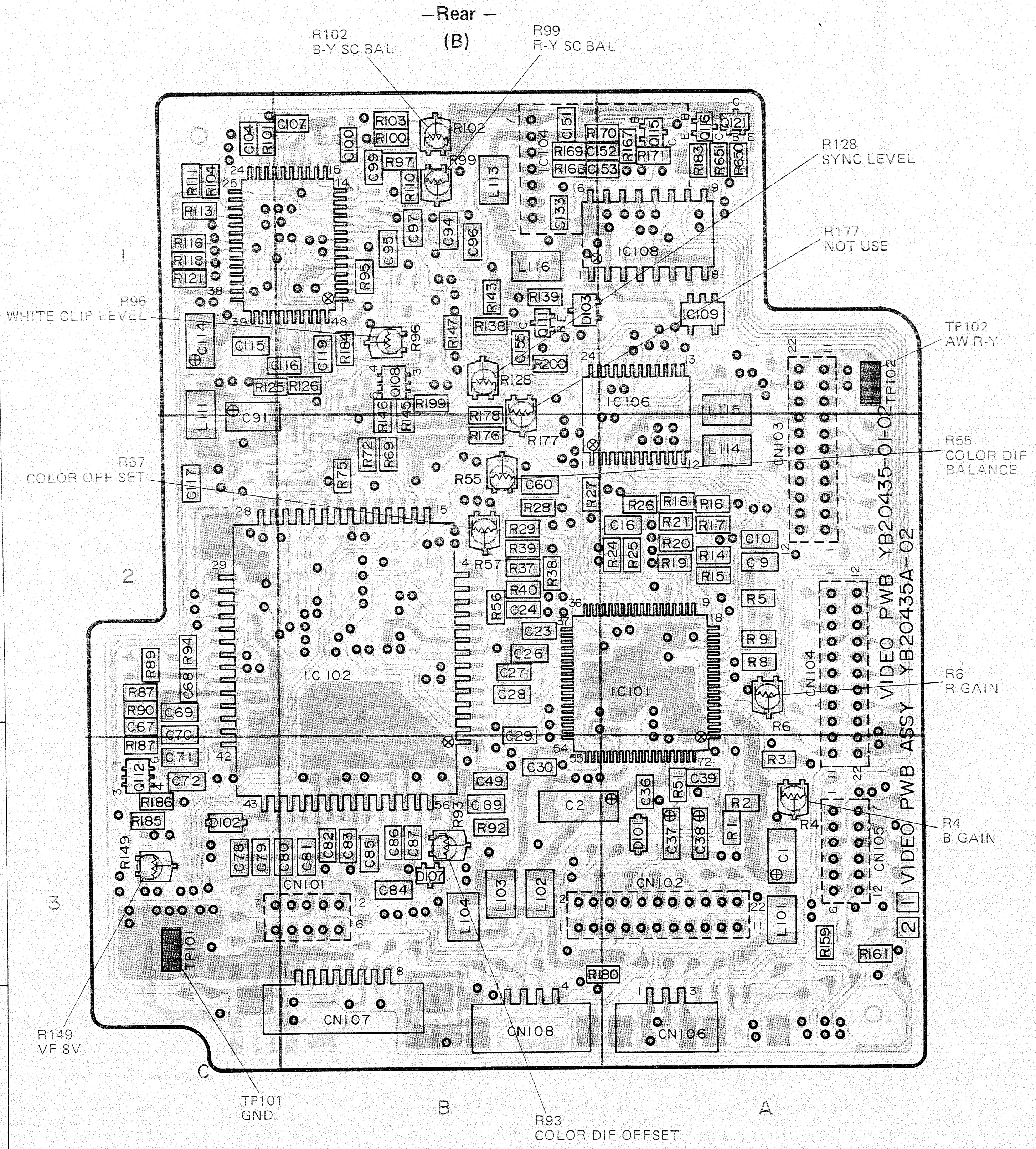
A-1D
- Address
- A : Discrete parts side
- B : Chip parts side

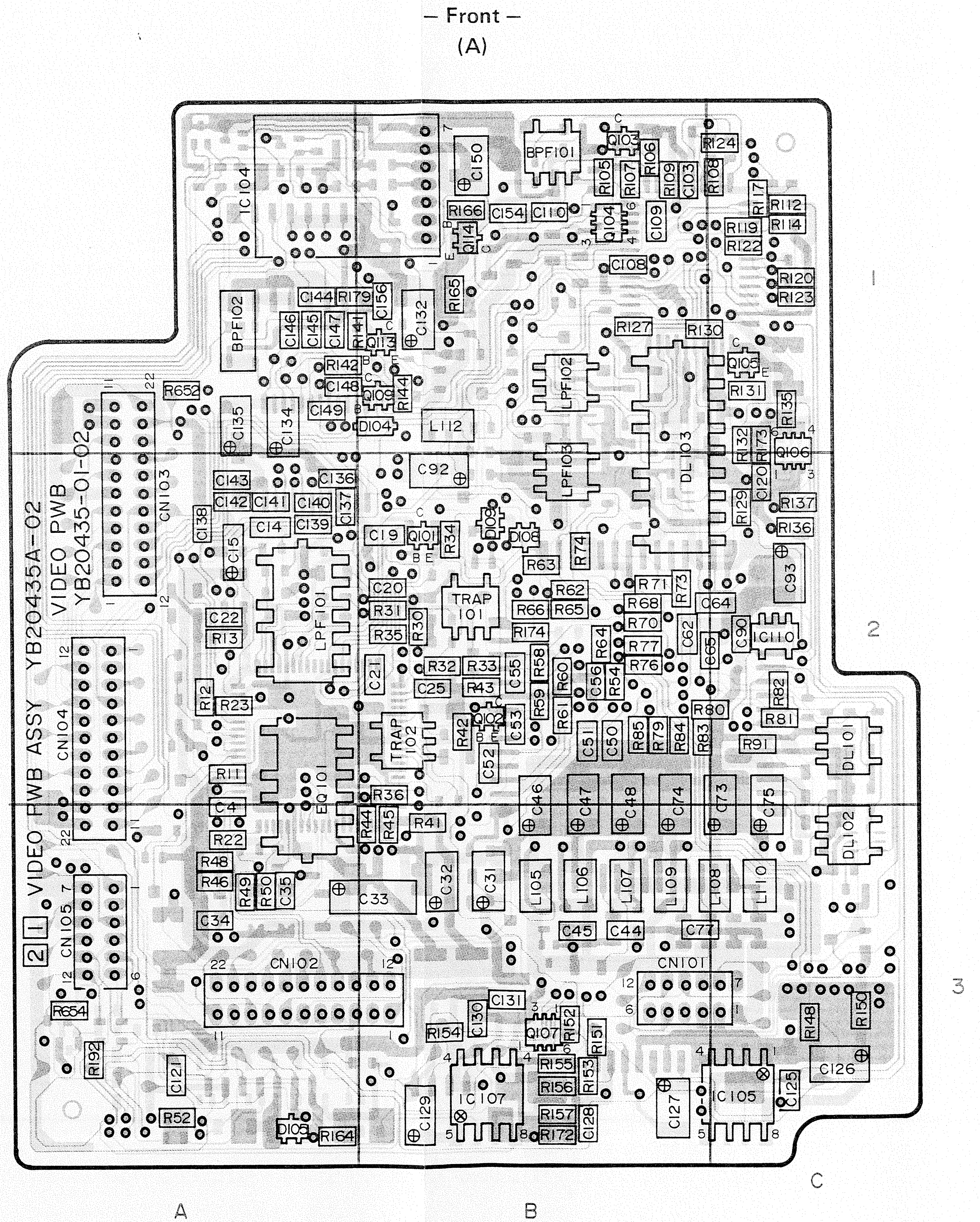
● SIGNAL PATH
- ➡ Y SIGNAL
- ⇨ COLOR (R-Y/B-Y) SIGNAL
- ➡ R, R-Y SIGNAL
- ⇨ B, B-Y SIGNAL



UN REG 9.6V
IC103 AN2271FAS
0.5 Vp-p
0.35 Vp-p
0.65 Vp-p
1.0 Vp-p
R128 SYNC LEVEL
R96 WHITE CLIP LEVEL
R99 R-Y SC BAL
R102 B-Y SC BAL
IC105 TK10682M
Q107 XP5501
IC107 NJM2249M
R149 VF 8V
D105 MA133
CN106
+8V
VS OUT
GND
To E VF
Q105 2SC4655
Q106 XP5501
IC108 MN4053BS
CN107
SEP Y GND
SEP Y OUT
SEP C GND
SEP C OUT
VF GND
VF IN
A FADER
NC
From/To 02 A/V CN6
DL103
BPF 10T
Q103
Q104
Q103 2SC4655
Q104 XP5501
IC106 AK9812
8BIT D/A CONVERTER
8BIT LATCH
EEPROM
CONTROL LOGIC
IC109
Q109
Q111
Q113
D103 RB715F
D104 MA110
CN104
TB
AW-1
TG
D1(AF)
TR
AW-2
KEY P
CK
NC
FLICKER
YHL
LLL
F CTL 1
DATE
F CTL 2
DATE FRING
F CTL 3
AGC CTL
F CTL 4
GND
FADER CTL
GND
From/To 23 CTL,CN301
IC108 MN4053BS
IC109 TC4S01F
Q109 2SA1790
Q111,Q113 2SC4655
CN103
AW-1
D1
AF-D1
SK
AW-2
CS
AF-CLK
DO
C
PE
+5V
R CTL
VD
B CTL
ENC CP
YL
NC
Y COMP
GND
AW B-Y
GND
AW R-Y
From/To 24 AW,CN402
TP102 AW R-Y
Q121
+5V
H
I
J
K
L
N
O
P

5.23 VIDEO CIRCUIT BOARD


– Rear –
(B)
R102
B-Y SC BAL
R99
R-Y SC BAL
R128
SYNC LEVEL
R177
NOT USE
TP102
AW R-Y
R96
WHITE CLIP LEVEL
R57
COLOR OFF SET
R55
COLOR DIF
BALANCE
R6
R GAIN
R4
B GAIN
R149
VF 8V
TP101
GND
R93
COLOR DIF OFFSET
VIDEO PWB ASSY YB20435A-02
VIDEO PWB YB20435-01-02
IC101
IC102
IC106
IC108
CN101
CN102
CN104
CN105
CN106
CN107
CN108
A
B
C
1
2
3


– Front –
(A)
VIDEO PWB ASSY YB20435A-02
VIDEO PWB YB20435-01-02
BPF101
BPF102
LPF101
LPF102
LPF103
DL101
DL102
DL103
TRAP 101
TRAP 102
EQ101
IC104
IC105
IC107
IC110
CN101
CN102
CN103
CN104
CN105
A
B
C
1
2
3

SECTION 7
ELECTRICAL PARTS LIST

SAFETY PRECAUTION

Parts identified by the ⚠ symbol are critical for safety. Replace only with specified part numbers.

NOTES:
- [2 digits] indicates circuit board symbol number.
- "X " indicates quantity per set.

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
*******************************			
	VIDEO BOARD ASSEMBLY <21>		
PWBA	YB20435A-02	VIDEO BOARD ASSY	
IC101	UPC2375GB	IC	
IC102	MSC7002GS-VK	IC	
IC103	AN2271FAS	IC	
IC104	MC8180B	IC	
IC105	TK10682M	IC	
IC106	AK9812	IC	
IC107	NJM2249M	IC	
IC108	MN4053BS	IC	
	or BU4053BF	IC	
IC109	TC4S01F	IC	
IC110	TC4S69F	IC	
Q101	2SC4655	TRANSISTOR	
Q102	2SC4655	TRANSISTOR	
Q103	2SC4655	TRANSISTOR	
Q104	XP5501	TRANSISTOR	
Q105	2SC4655	TRANSISTOR	
Q106	XP5501	TRANSISTOR	
Q107	XP5501	TRANSISTOR	
Q108	XP5501	TRANSISTOR	
Q109	2SA1790	TRANSISTOR	
Q111	2SC4655	TRANSISTOR	
Q112	XP5501	TRANSISTOR	
Q113	2SC4655	TRANSISTOR	
Q114	2SC4655	TRANSISTOR	
Q115	2SC4655	TRANSISTOR	
Q116	2SC4655	TRANSISTOR	
Q121	2SC4655	TRANSISTOR	
D101	MA110	DIODE	
D102	MA110	DIODE	
D103	RB715F	DIODE	
D104	MA110	DIODE	
D105	MA133	DIODE	
D107	MA133	DIODE	
D108	MA133	DIODE	
D109	MA133	DIODE	
R1	NRSA63J-273N	RESISTOR	27KΩ,1/16W
R2	NRSA63J-123N	RESISTOR	12KΩ,1/16W
R3	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R4	NVP1201-223N	V RESISTOR,B GAIN	22KΩ,1/2W
R5	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R6	NVP1201-223N	V RESISTOR,R GAIN	22KΩ,1/2W
R8	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R9	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R11	NRSA63J-123N	RESISTOR	12KΩ,1/16W
R12	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R13	NRSA63J-223N	RESISTOR	22KΩ,1/16W
R14	NRSA63J-273N	RESISTOR	27KΩ,1/16W
R15	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R16	NRSA63J-223N	RESISTOR	22KΩ,1/16W
R17	NRSA63J-273N	RESISTOR	27KΩ,1/16W
R18	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R19	NRSA63J-223N	RESISTOR	22KΩ,1/16W
R20	NRSA63J-273N	RESISTOR	27KΩ,1/16W
R21	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R22	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R23	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R24	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R25	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R26	NRSA63J-273N	RESISTOR	27KΩ,1/16W
R27	NRSA63J-153N	RESISTOR	15KΩ,1/16W
R28	NRSA63J-273N	RESISTOR	27KΩ,1/16W
R29	NRSA63J-153N	RESISTOR	15KΩ,1/16W
R30	NRSA63J-682N	RESISTOR	6.8KΩ,1/16W
R31	NRSA63J-123N	RESISTOR	12KΩ,1/16W
R32	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R33	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R34	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R35	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R36	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R37	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R38	NRSA63J-393N	RESISTOR	39KΩ,1/16W
R39	NRSA63J-393N	RESISTOR	39KΩ,1/16W
R40	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R41	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R42	NRSA63J-182N	RESISTOR	1.8KΩ,1/16W
R43	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R44	NRSA63J-113N	RESISTOR	11KΩ,1/16W
R45	NRSA63J-393N	RESISTOR	39KΩ,1/16W
R46	NRSA63J-392N	RESISTOR	3.9KΩ,1/16W
R48	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R49	NRSA63J-123N	RESISTOR	12KΩ,1/16W
R50	NRSA63J-273N	RESISTOR	27KΩ,1/16W
R51	NRSA63J-563N	RESISTOR	56KΩ,1/16W
R52	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R54	NRSA63J-225N	RESISTOR	2.2MΩ,1/16W
R55	NVP1201-223N	V RESISTOR,COLOR DIF BALANCE	22KΩ,1/2W
R56	NRSA63J-225N	RESISTOR	2.2MΩ,1/16W
R57	NVP1201-223N	V RESISTOR,COLOR OFFSET	22KΩ,1/2W
R58	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R59	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R60	NRSA63J-153N	RESISTOR	15KΩ,1/16W
R61	NRSA63J-822N	RESISTOR	8.2KΩ,1/16W
R62	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R63	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R64	NRSA63J-153N	RESISTOR	15KΩ,1/16W
R65	NRSA63J-123N	RESISTOR	12KΩ,1/16W
R66	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R68	NRSA63J-153N	RESISTOR	15KΩ,1/16W
R69	NRSA63J-822N	RESISTOR	8.2KΩ,1/16W
R70	NRSA63J-333N	RESISTOR	33KΩ,1/16W
R71	NRSA63J-682N	RESISTOR	6.8KΩ,1/16W
R72	NRSA63J-273N	RESISTOR	27KΩ,1/16W
R73	NRSA63J-183N	RESISTOR	18KΩ,1/16W
R74	NRSA63J-153N	RESISTOR	15KΩ,1/16W
R75	NRSA63J-822N	RESISTOR	8.2KΩ,1/16W
R76	NRSA63J-153N	RESISTOR	15KΩ,1/16W
R77	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R79	NRSA63J-223N	RESISTOR	22KΩ,1/16W
R80	NRSA63J-123N	RESISTOR	12KΩ,1/16W
R81	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R82	NRSA63J-124N	RESISTOR	120KΩ,1/16W
R83	NRSA63J-153N	RESISTOR	15KΩ,1/16W
R84	NRSA63J-682N	RESISTOR	6.8KΩ,1/16W
R85	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R87	NRSA63J-153N	RESISTOR	15KΩ,1/16W
R89	NRSA63J-153N	RESISTOR	15KΩ,1/16W
R90	NRSA63J-133N	RESISTOR	13KΩ,1/16W
R91	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R92	NRSA63J-225N	RESISTOR	2.2MΩ,1/16W
R93	NVP1201-223N	V RESISTOR,COLOR DIF OFFSET	22KΩ,1/2W
R94	NRSA63J-104N	RESISTOR	100KΩ,1/16W
R95	NRSA63J-153N	RESISTOR	15KΩ,1/16W
R96	NVP1201-472N	V RESISTOR,WHITE CLIP LEVEL	4.7KΩ,1/2W
R97	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R99	NVP1201-104N	V RESISTOR,R-Y SC BAL	100KΩ,1/2W
R100	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R101	NRSA63J-101N	RESISTOR	100Ω,1/16W
R102	NVP1201-104N	V RESISTOR,B-Y SC BAL	100KΩ,1/2W
R103	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R104	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R105	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R106	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R107	NRSA63J-751N	RESISTOR	750Ω,1/16W
R108	NRSA63J-182N	RESISTOR	1.8KΩ,1/16W
R109	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R110	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R111	NRSA63J-100N	RESISTOR	10Ω,1/16W
R112	NRSA63J-393N	RESISTOR	39KΩ,1/16W
R113	NRSA63J-183N	RESISTOR	18KΩ,1/16W
R114	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R116	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R117	NRSA63J-223N	RESISTOR	22KΩ,1/16W
R118	NRSA63J-223N	RESISTOR	22KΩ,1/16W
R119	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R120	NRSA63J-273N	RESISTOR	27KΩ,1/16W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R121	NRSA63J-153N	RESISTOR	15KΩ,1/16W
R122	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R123	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R124	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R125	NRSA63J-393N	RESISTOR	39KΩ,1/16W
R126	NRSA63J-183N	RESISTOR	18KΩ,1/16W
R127	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R128	NVP1201-472N	V RESISTOR,SYNC LEVEL	4.7KΩ,1/2W
R129	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R130	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R131	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R132	NRSA63J-751N	RESISTOR	750Ω,1/16W
R135	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R136	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R137	NRSA63J-100N	RESISTOR	10Ω,1/16W
R138	NRSA63J-182N	RESISTOR	1.8KΩ,1/16W
R139	NRSA63J-391N	RESISTOR	390Ω,1/16W
R141	NRSA63J-182N	RESISTOR	1.8KΩ,1/16W
R142	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R143	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R144	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R145	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R146	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R147	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
R148	NRSA63J-202N	RESISTOR	2KΩ,1/16W
R149	NVP1201-472N	V RESISTOR,VF8V	4.7KΩ,1/2W
R150	NRSA63J-912N	RESISTOR	9.1KΩ,1/16W
R151	NRSA63J-273N	RESISTOR	27KΩ,1/16W
R152	NRSA63J-683N	RESISTOR	68KΩ,1/16W
R153	NRSA63J-272N	RESISTOR	2.7KΩ,1/16W
R154	NRSA63J-272N	RESISTOR	2.7KΩ,1/16W
R155	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R156	NRSA63J-303N	RESISTOR	30KΩ,1/16W
R157	NRSA63J-393N	RESISTOR	39KΩ,1/16W
R159	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R161	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R164	NRSA63J-680N	RESISTOR	68Ω,1/16W
R165	NRSA63J-681N	RESISTOR	680Ω,1/16W
R166	NRSA63J-682N	RESISTOR	6.8KΩ,1/16W
R167	NRSA63J-681N	RESISTOR	680Ω,1/16W
R168	NRSA63J-682N	RESISTOR	6.8KΩ,1/16W
R169	NRSA63J-272N	RESISTOR	2.7KΩ,1/16W
R170	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R171	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R172	NRSA63J-154N	RESISTOR	150KΩ,1/16W
R173	NRSA63J-182N	RESISTOR	1.8KΩ,1/16W
R174	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R176	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R177	NVP1201-223N	V RESISTOR,NOT USE	22KΩ,1/2W
R178	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R179	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R180	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R183	NRSA63J-331N	RESISTOR	330Ω,1/16W
R184	NRSA63J-123N	RESISTOR	12KΩ,1/16W
R185	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R186	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	R187	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R192	NRSA63J-471N	RESISTOR	470Ω,1/16W
	R199	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
	R200	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R650	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
	R651	NRSA63J-182N	RESISTOR	1.8KΩ,1/16W
	R652	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R654	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
	C1	NEE21AM-106RS	TANTAL CAPACITOR	10μF,10V
	C2	NEE21AM-336RU	TANTAL CAPACITOR	33μF,10V
	C4	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C9	QCYA1EK-104	CAPACITOR	0.1μF,25V
	C10	QCYA1EK-104	CAPACITOR	0.1μF,25V
	C14	QCYA1EK-104	CAPACITOR	0.1μF,25V
	C15	NEE20GM-106RS	TANTAL CAPACITOR	10μF,4.0V
	C16	QCYA1EK-104	CAPACITOR	0.1μF,25V
	C19	QCYA1EK-104	CAPACITOR	0.1μF,25V
	C20	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C21	QCYA1EK-104	CAPACITOR	0.1μF,25V
	C22	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C23	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C24	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C25	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C26	QCYA1EK-104	CAPACITOR	0.1μF,25V
	C27	NCB31EK-223A	CAPACITOR	0.022μF,25V
	C28	QCYA1EK-104	CAPACITOR	0.1μF,25V
	C29	NCB31EK-223A	CAPACITOR	0.022μF,25V
	C30	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C31	NEE21AM-106RS	TANTAL CAPACITOR	10μF,10V
	C32	NEE21AM-106RS	TANTAL CAPACITOR	10μF,10V
	C33	NEE21AM-476RU	TANTAL CAPACITOR	47μF,10V
	C34	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C35	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C36	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C37	NEE21VM-474RS	TANTAL CAPACITOR	0.47μF,35V
	C38	NEE21VM-474RS	TANTAL CAPACITOR	0.47μF,35V
	C39	NCB31EK-223A	CAPACITOR	0.022μF,25V
	C44	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C45	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C46	NEE21AM-106RS	TANTAL CAPACITOR	10μF,10V
	C47	NEE21AM-106RS	TANTAL CAPACITOR	10μF,10V
	C48	NEE21CM-685RS	TANTAL CAPACITOR	6.8μF,16V
	C49	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C50	QCYA1EK-473	CAPACITOR	0.047μF,25V
	C51	QCYA1EK-473	CAPACITOR	0.047μF,25V
	C52	QCYA1EK-473	CAPACITOR	0.047μF,25V
	C53	QCYA1EK-473	CAPACITOR	0.047μF,25V
	C55	QCYA1EK-473	CAPACITOR	0.047μF,25V
	C56	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C60	QCYA1EK-473	CAPACITOR	0.047μF,25V
	C62	QCYA1EK-473	CAPACITOR	0.047μF,25V

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	C64	QCYA1EK-104	CAPACITOR	0.1μF,25V
	C65	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C67	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C68	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C69	QCYA1EK-473	CAPACITOR	0.047μF,25V
	C70	QCYA1EK-473	CAPACITOR	0.047μF,25V
	C71	QCYA1EK-473	CAPACITOR	0.047μF,25V
	C72	QCYA1EK-473	CAPACITOR	0.047μF,25V
	C73	NEE21CM-685RS	TANTAL CAPACITOR	6.8μF,16V
	C74	NEE21AM-106RS	TANTAL CAPACITOR	10μF,10V
	C75	NEE21AM-106RS	TANTAL CAPACITOR	10μF,10V
	C77	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C78	QCYA1EK-473	CAPACITOR	0.047μF,25V
	C79	QCYA1EK-473	CAPACITOR	0.047μF,25V
	C80	QCYA1EK-473	CAPACITOR	0.047μF,25V
	C81	QCYA1EK-473	CAPACITOR	0.047μF,25V
	C82	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C83	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C84	QCYA1EK-473	CAPACITOR	0.047μF,25V
	C85	QCYA1EK-473	CAPACITOR	0.047μF,25V
	C86	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C87	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C89	QCYA1EK-473	CAPACITOR	0.047μF,25V
	C90	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C91	NEE21AM-106RS	TANTAL CAPACITOR	10μF,10V
	C92	NEE21AM-106RS	TANTAL CAPACITOR	10μF,10V
	C93	NEE21AM-106RS	TANTAL CAPACITOR	10μF,10V
	C94	QCYA1EK-473	CAPACITOR	0.047μF,25V
	C95	QCYA1EK-473	CAPACITOR	0.047μF,25V
	C96	QCYA1EK-473	CAPACITOR	0.047μF,25V
	C97	QCYA1EK-473	CAPACITOR	0.047μF,25V
	C99	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C100	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C103	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C104	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C107	NCT07CH-5R0A	CAPACITOR	5PF
	C108	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C109	QCYA1EK-473	CAPACITOR	0.047μF,25V
	C110	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C114	NEE21AM-475RS	TANTAL CAPACITOR	4.7μF,10V
	C115	QCYA1EK-473	CAPACITOR	0.047μF,25V
	C116	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C117	QCYA1EK-473	CAPACITOR	0.047μF,25V
	C119	QCYA1EK-473	CAPACITOR	0.047μF,25V
	C120	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C121	QCFA1CZ-105	CAPACITOR	1μF,16V
	C125	QCFA1CZ-105	CAPACITOR	1μF,16V
	C126	NEE21CM-685RS	TANTAL CAPACITOR	6.8μF,16V
	C127	NEE21AM-106RS	TANTAL CAPACITOR	10μF,10V
	C128	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C129	NEE21AM-106RS	TANTAL CAPACITOR	10μF,10V
	C130	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C131	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C132	NEE21AM-106RS	TANTAL CAPACITOR	10μF,10V
	C133	NCF31CZ-104A	CAPACITOR	0.1μF,16V

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
C134	NEE21AM-106RS	TANTAL CAPACITOR	10μF,10V
C135	NEE21AM-106RS	TANTAL CAPACITOR	10μF,10V
C136	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C137	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C138	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C139	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C140	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C141	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C142	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C143	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C144	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C145	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C146	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C147	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C148	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C149	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C150	NEE21AM-106RS	TANTAL CAPACITOR	10μF,10V
C151	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C152	NCT06CH-560A	CAPACITOR	56PF
C153	NCT06CH-680A	CAPACITOR	68PF
C154	NCT06CH-101A	CAPACITOR	100PF
C155	NCT07CH-101A	CAPACITOR	100PF
C156	NCF31CZ-104A	CAPACITOR	0.1μF,16V
L101	YU40740-220K	COIL	22μH
	or YU41135-220K	COIL	22μH
L102	YU40740-220K	COIL	22μH
	or YU41135-220K	COIL	22μH
L103	YU40740-220K	COIL	22μH
	or YU41135-220K	COIL	22μH
L104	YU40740-220K	COIL	22μH
	or YU41135-220K	COIL	22μH
L105	YU40740-220K	COIL	22μH
	or YU41135-220K	COIL	22μH
L106	YU40740-470K	COIL	47μH
	or YU41135-470K	COIL	47μH
L107	YU40740-470K	COIL	47μH
	or YU41135-470K	COIL	47μH
L108	YU40740-470K	COIL	47μH
	or YU41135-470K	COIL	47μH
L109	YU40740-470K	COIL	47μH
	or YU41135-470K	COIL	47μH
L110	YU40740-220K	COIL	22μH
	or YU41135-220K	COIL	22μH
L111	YU40740-220K	COIL	22μH
	or YU41135-220K	COIL	22μH
L112	YU40740-220K	COIL	22μH
	or YU41135-220K	COIL	22μH
L113	YU40740-220K	COIL	22μH
	or YU41135-220K	COIL	22μH
L114	YU40740-220K	COIL	22μH
	or YU41135-220K	COIL	22μH
L115	YU40740-220K	COIL	22μH
	or YU41135-220K	COIL	22μH
L116	YU40740-220K	COIL	22μH
	or YU41135-220K	COIL	22μH

#△ REF No.	PART No.	PART NAME, DESCRIPTION
TRAP1	YU41655	TRAP,TRAP101
TRAP2	YU41656	TRAP,TRAP102
TRAP3	YU41325-7R2	TRAP,TRAP103
EQ101	YU41660	EQUALIZER
LPF101	YU41661	LOW PASS FILTER
LPF102	PELN0355	LOW PASS FILTER
	or PELN0356	LOW PASS FILTER
LPF103	PELN0355	LOW PASS FILTER
	or PELN0356	LOW PASS FILTER
BPF101	YU41497	BAND PASS FILTER
DL101	YU41657	DELAY LINE
	or PELN0583	DELAY LINE
DL102	YU41657	DELAY LINE
	or PELN0583	DELAY LINE
DL103	PELN0352	FILTER
J101	ML-Y00255A	LUG WIRE 2
TP101	YU40581	TEST PIN,GND
TP102	YU40581	TEST PIN,AW R-Y
CN101	YU40682-12	CAP HOUSING,(BOARD TO BOARD)
CN102	YU40682-22	CAP HOUSING,(BOARD TO BOARD)
CN103	YU40682-22	CAP HOUSING,(BOARD TO BOARD)
CN104	YU40682-22	CAP HOUSING,(BOARD TO BOARD)
CN105	YU40682-12	CAP HOUSING,(BOARD TO BOARD)
CN106	YU41356-3	CAP HOUSING
CN107	YU41355-8	CAP HOUSING
CN108	YU41356-4	CAP HOUSING

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AW BOARD ASSEMBLY <24>

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
PWBA	YB20384B	AUTO WHITE BOARD ASSY	
IC401	AN2368FAP	IC	
IC402	MN18888JFFS	IC	
	or MN18P888FAP-F	IC	
IC403	MSM16811MS	IC	
IC404	LM324DB	IC	
IC405	TC4S66F	IC	
IC406	TC4S66F	IC	
IC407	MN12821(QR)	IC	
IC408	TC7S08F	IC	
Q401	XP5601	TRANSISTOR	
Q402	XP5601	TRANSISTOR	
Q403	2SA1532(BC)	TRANSISTOR	
D401	MA141K	DIODE	
R401	NRSA63J-183N	RESISTOR	18KΩ,1/16W
R403	NRSA63J-682N	RESISTOR	6.8KΩ,1/16W
R407	NRSA63J-183N	RESISTOR	18KΩ,1/16W
R408	NRSA63J-683N	RESISTOR	68KΩ,1/16W
R409	NRSA63J-392N	RESISTOR	3.9KΩ,1/16W
R410	NRSA63J-223N	RESISTOR	22KΩ,1/16W
R411	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
R412	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
R413	NRSA63J-153N	RESISTOR	15KΩ,1/16W
R414	NRSA63J-153N	RESISTOR	15KΩ,1/16W
R415	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R416	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R418	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R419	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R420	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R421	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R422	NRSA63J-101N	RESISTOR	100Ω,1/16W
R423	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R425	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R426	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R427	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R428	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R429	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R430	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R431	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R432	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R433	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R434	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R435	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R436	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R437	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R438	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R439	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R440	NRSA63J-153N	RESISTOR	15KΩ,1/16W
R441	NRSA63J-303N	RESISTOR	30KΩ,1/16W
R442	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R443	NRSA63J-113N	RESISTOR	11KΩ,1/16W
R444	NRSA63J-113N	RESISTOR	11KΩ,1/16W
R445	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R447	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R448	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R449	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R455	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R472	NRSA63J-182N	RESISTOR	1.8KΩ,1/16W
R473	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R475	NRSA63J-103N	RESISTOR	10KΩ,1/16W
RA401	YU41580	RESISTOR ARRAY	
RA402	YU41580	RESISTOR ARRAY	
C401	NEH11CM-106N	E CAPACITOR	10μF,16V
C402	NCB31EK-103A	CAPACITOR	0.01μF,25V
C403	NCB31EK-103A	CAPACITOR	0.01μF,25V
C404	NEH11CM-106N	E CAPACITOR	10μF,16V
C405	QCYA1EK-473	CAPACITOR	0.047μF,25V
C406	QCYA1EK-473	CAPACITOR	0.047μF,25V
C407	QCYA1EK-473	CAPACITOR	0.047μF,25V
C408	QCYA1EK-473	CAPACITOR	0.047μF,25V
C409	NCB31EK-103A	CAPACITOR	0.01μF,25V
C410	NCB31EK-103A	CAPACITOR	0.01μF,25V
C411	NEE20JM-475RS	TANTAL CAPACITOR	4.7μF,6.3V
C412	NCB31EK-103A	CAPACITOR	0.01μF,25V
C413	NEH11CM-106N	E CAPACITOR	10μF,16V
C415	NEE21AM-225RS	TANTAL CAPACITOR	2.2μF,10V
C416	NEE21AM-225RS	TANTAL CAPACITOR	2.2μF,10V
C417	NEE21AM-225RS	TANTAL CAPACITOR	2.2μF,10V
C419	QCYA1EK-473	CAPACITOR	0.047μF,25V
C420	QCYA1EK-473	CAPACITOR	0.047μF,25V
C421	NCB31EK-103A	CAPACITOR	0.01μF,25V
C422	NCB31EK-103A	CAPACITOR	0.01μF,25V
C423	NEH11CM-106N	E CAPACITOR	10μF,16V
C424	NCB31EK-103A	CAPACITOR	0.01μF,25V
C425	NCB31EK-103A	CAPACITOR	0.01μF,25V
C426	NCT07CH-151A	CAPACITOR	150PF
C427	NCT07CH-151A	CAPACITOR	150PF
C428	NCT07CH-151A	CAPACITOR	150PF
C429	NCB31EK-103A	CAPACITOR	0.01μF,25V
C431	NCB31EK-103A	CAPACITOR	0.01μF,25V
C432	NCB31EK-103A	CAPACITOR	0.01μF,25V
C433	NEH11CM-106N	E CAPACITOR	10μF,16V
C434	NCB31EK-103A	CAPACITOR	0.01μF,25V
C435	NCB31EK-103A	CAPACITOR	0.01μF,25V
C436	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C437	NCB31EK-103A	CAPACITOR	0.01μF,25V

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C438	NEE21AM-225RS	TANTAL CAPACITOR	2.2µF,10V
C439	NCB31EK-103A	CAPACITOR	0.01µF,25V
C440	NCB31EK-103A	CAPACITOR	0.01µF,25V
C441	NCB31EK-103A	CAPACITOR	0.01µF,25V
L401	YU41135-220K	COIL	22µH
	or YU40740-220K	COIL	22µH
L402	YU41135-220K	COIL	22µH
	or YU40740-220K	COIL	22µH
L403	YU41135-220K	COIL	22µH
	or YU40740-220K	COIL	22µH
L404	YU41135-220K	COIL	22µH
	or YU40740-220K	COIL	22µH
⚠ X401	PEVB0362	CERAMIC OSC,OSC401	
SLD1	YQ40538	SHEET	
TP401	YU40581	TEST PIN,GND (GND401)	
CN402	YU40684-22	CAP HOUSING,(BOARD TO BOARD)	
CN403	YU40096-8	CAP HOUSING	

#⚠ REF No. PART No. PART NAME, DESCRIPTION

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AF BOARD ASSEMBLY <25>

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
PWBA	YB20452D-01	AUTO FOCUS BOARD ASSY	
IC501	JCY0007	IC	
	or JCY0007-1	IC	
IC502	MN18888JFES	IC	
IC503	MN12821(QR)	IC	
IC504	HA13489MP	IC	
IC505	AN2571FAP	IC	
IC506	JCY0009	IC	
IC507	LM324DB	IC	
IC508	TK10682M	IC	
Q501	XP5601	TRANSISTOR	
Q502	XP5601	TRANSISTOR	
Q503	DTA114EU	TRANSISTOR	
Q504	XP2501	TRANSISTOR	
Q505	DTA114EU	TRANSISTOR	
Q506	XP2401	TRANSISTOR	
Q507	DTA114EU	TRANSISTOR	
D502	MA141WK	DIODE	
R501	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R502	NRSA63J-392N	RESISTOR	3.9KΩ,1/16W
R503	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R504	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R505	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R506	NVP1306-334N	V RESISTOR,GAIN	330KΩ
	or NVP1302-334N	V RESISTOR,GAIN	330KΩ
R507	NRSA63J-823N	RESISTOR	82KΩ,1/16W
R508	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
R509	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R510	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
R513	NVP1306-222N	V RESISTOR,OFFSET	2.2KΩ
	or NVP1302-222N	V RESISTOR,OFFSET	2.2KΩ
R515	NRSA63J-183N	RESISTOR	18KΩ,1/16W
R516	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R517	NRSA63J-123N	RESISTOR	12KΩ,1/16W
R518	NRSA63J-683N	RESISTOR	68KΩ,1/16W
R519	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R522	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R523	NRSA63J-223N	RESISTOR	22KΩ,1/16W
R524	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R528	NRSA63J-272N	RESISTOR	2.7KΩ,1/16W
R529	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R530	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R531	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R532	NRSA63J-102N	RESISTOR	1KΩ,1/16W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R533	NRSA63J-821N	RESISTOR	820Ω,1/16W
R534	NRSA63J-221N	RESISTOR	220Ω,1/16W
R535	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R536	NRSA63J-471N	RESISTOR	470Ω,1/16W
R537	NRSA63J-471N	RESISTOR	470Ω,1/16W
R538	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R539	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R540	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R541	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R544	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R545	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R546	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R548	NRSA63J-331N	RESISTOR	330Ω,1/16W
R549	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R550	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R551	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R552	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R560	NRSA63J-183N	RESISTOR	18KΩ,1/16W
R561	NRSA63J-683N	RESISTOR	68KΩ,1/16W
R562	NRSA63J-271N	RESISTOR	270Ω,1/16W
R563	NRSA63J-682N	RESISTOR	6.8KΩ,1/16W
R564	NRSA63J-273N	RESISTOR	27KΩ,1/16W
R565	NRSA63J-183N	RESISTOR	18KΩ,1/16W
R566	NRSA63J-333N	RESISTOR	33KΩ,1/16W
R567	NRSA63J-333N	RESISTOR	33KΩ,1/16W
R568	NRSA63J-682N	RESISTOR	6.8KΩ,1/16W
R569	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
R570	NRSA63J-182N	RESISTOR	1.8KΩ,1/16W
R571	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R572	NRSA63J-471N	RESISTOR	470Ω,1/16W
R573	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R574	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R575	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R576	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R578	NRSA63J-682N	RESISTOR	6.8KΩ,1/16W
R579	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R580	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R581	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R582	NRSA63J-123N	RESISTOR	12KΩ,1/16W
R583	NRSA63J-202N	RESISTOR	2KΩ,1/16W
R585	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R586	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R587	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
R588	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R589	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R592	NRSA63J-821N	RESISTOR	820Ω,1/16W
R594	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R595	NRSA63J-333N	RESISTOR	33KΩ,1/16W
R596	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R597	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R598	NRSA63J-822N	RESISTOR	8.2KΩ,1/16W
R599	NRSA63J-393N	RESISTOR	39KΩ,1/16W
R800	NVP1306-223N	V RESISTOR,EE LEVEL	22KΩ
	or NVP1302-223N	V RESISTOR,EE LEVEL	22KΩ

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R801	NRSA63J-563N	RESISTOR	56KΩ,1/16W
R802	NRSA63J-184N	RESISTOR	180KΩ,1/16W
R803	NRSA63J-105N	RESISTOR	1MΩ,1/16W
R805	NRSA63J-104N	RESISTOR	100KΩ,1/16W
R806	NRSA63J-104N	RESISTOR	100KΩ,1/16W
R807	NRSA63J-183N	RESISTOR	18KΩ,1/16W
R808	NRSA63J-393N	RESISTOR	39KΩ,1/16W
R809	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R810	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R811	NRSA63J-101N	RESISTOR	100Ω,1/16W
R812	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R813	NRVA62D-104N	RESISTOR	100KΩ,1/16W
R814	NRVA62D-822N	RESISTOR	8.2KΩ,1/16W
R815	NRSA63J-105N	RESISTOR	1MΩ,1/16W
R816	NRVA62D-105N	RESISTOR	1MΩ,1/16W
R817	NRSA63J-104N	RESISTOR	100KΩ,1/16W
R818	NRSA63J-563N	RESISTOR	56KΩ,1/16W
R819	NRSA63J-105N	RESISTOR	1MΩ,1/16W
R820	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
R821	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
R822	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
R823	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R824	NRSA63J-272N	RESISTOR	2.7KΩ,1/16W
R825	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R827	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R830	NRSA63J-105N	RESISTOR	1MΩ,1/16W
R832	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R834	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R835	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R837	NRSA63J-2R2N	RESISTOR	2.2Ω,1/16W
RA501	YU41573-103N	RESISTOR ARRAY	
RA502	YU41573-103N	RESISTOR ARRAY	
RA503	YU41573-103N	RESISTOR ARRAY	
RA504	YU41573-103N	RESISTOR ARRAY	
C501	NEH30JM-226N	E CAPACITOR	22μF,6.3V
	or NEH10JM-226N	E CAPACITOR	22μF,6.3V
C502	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C503	NEH30JM-226N	E CAPACITOR	22μF,6.3V
	or NEH10JM-226N	E CAPACITOR	22μF,6.3V
C504	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C505	NEH31CM-106N	E CAPACITOR	10μF,16V
	or NEH11CM-106N	E CAPACITOR	10μF,16V
C506	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C507	NEE21CM-336RU	TANTAL CAPACITOR	33μF,16V
C508	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C509	NEE21CM-336RU	TANTAL CAPACITOR	33μF,16V
C510	NCB31HK-222A	CAPACITOR	0.0022μF,50V
C511	NCR21CK-473A	CAPACITOR	0.047μF,16V
C512	NEE20GM-475RS	TANTAL CAPACITOR	4.7μF,4.0V
C513	NCR21CK-473A	CAPACITOR	0.047μF,16V
C514	NCB31HK-102A	CAPACITOR	0.001μF,50V
C515	NCT07CH-5R0A	CAPACITOR	5PF
C516	NCT07CH-151A	CAPACITOR	150PF
C517	NCF31CZ-104A	CAPACITOR	0.1μF,16V

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C518	NCB31EK-103A	CAPACITOR	0.01μF,25V
C519	NCT07CH-220A	CAPACITOR	22PF
C520	NCB31EK-103A	CAPACITOR	0.01μF,25V
C521	NCR21CK-473A	CAPACITOR	0.047μF,16V
C522	NCT07CH-151A	CAPACITOR	150PF
C523	NCT07CH-121A	CAPACITOR	120PF
C524	QCYA1HK-103	CAPACITOR	0.01μF,50V
C525	NCB31HK-102A	CAPACITOR	0.001μF,50V
C526	QCYA1HK-273	CAPACITOR	0.027μF,50V
C529	QCYA1HK-273	CAPACITOR	0.027μF,50V
C530	NCT07CH-101A	CAPACITOR	100PF
C531	QCYA1HK-273	CAPACITOR	0.027μF,50V
C532	NCT07CH-101A	CAPACITOR	100PF
C533	NCR21CK-473A	CAPACITOR	0.047μF,16V
C534	NCR31CK-223A	CAPACITOR	0.022μF,16V
C535	NCR21CK-473A	CAPACITOR	0.047μF,16V
C536	NCR31CK-223A	CAPACITOR	0.022μF,16V
C537	NCR21CK-473A	CAPACITOR	0.047μF,16V
C538	NCR31CK-223A	CAPACITOR	0.022μF,16V
C539	NCT07CH-101A	CAPACITOR	100PF
C540	NCB31EK-103A	CAPACITOR	0.01μF,25V
C541	NCT07CH-121A	CAPACITOR	120PF
C542	NCT07CH-330A	CAPACITOR	33PF
C543	NCT07CH-151A	CAPACITOR	150PF
C544	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C547	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C548	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C549	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C550	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C551	NCT07CH-151A	CAPACITOR	150PF
C552	NCT07CH-151A	CAPACITOR	150PF
C553	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C555	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C560	NEN11EM-226NZ	E CAPACITOR	22μF,25V
C561	QCY81EK-104	CAPACITOR	0.1μF,25V
C562	QCYA1EK-104	CAPACITOR	0.1μF,25V
C563	QCYA1EK-104	CAPACITOR	0.1μF,25V
C564	NCR21CK-473A	CAPACITOR	0.047μF,16V
C565	NCR21CK-473A	CAPACITOR	0.047μF,16V
C566	NCR21CK-473A	CAPACITOR	0.047μF,16V
C568	NCB31HK-102A	CAPACITOR	0.001μF,50V
C569	NEE21VM-224RS	TANTAL CAPACITOR	0.22μF,35V
C570	NEE21CM-105RS	TANTAL CAPACITOR	1μF,16V
C571	NEE21VM-224RS	TANTAL CAPACITOR	0.22μF,35V
C572	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C573	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C574	NCR31CK-183A	CAPACITOR	0.018μF,16V
C575	NCR31CK-183A	CAPACITOR	0.018μF,16V
C576	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C577	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C579	NCT07CH-100A	CAPACITOR	10PF
C580	NCB31HK-102A	CAPACITOR	0.001μF,50V
L501	YU40740-470K	COIL	47μH
	or YU41135-470K	COIL	47μH
L502	YU40740-470K	COIL	47μH
	or YU41135-470K	COIL	47μH
L503	YU40740-470K	COIL	47μH
	or YU41135-470K	COIL	47μH
L504	YU40740-470K	COIL	47μH
	or YU41135-470K	COIL	47μH
L505	PU58201-330K	COIL	33μH
L506	PU58201-121K	COIL	120μH
BPF501	YU40700	BAND PASS FILTER	
BPF502	YU41033	BAND PASS FILTER	
TP501	YU40581	TEST PIN,HOLE ELEMENT AMP OUT	
CN501	YU40682-16	CAP HOUSING,(BOARD TO BOARD)	
CN502	YU40682-8	CAP HOUSING,(BOARD TO BOARD)	
CN503	YU40096-6	CAP HOUSING	
CN504	YU40096-8	CAP HOUSING	
CN505	YU40096-4B	CAP HOUSING	
CN506	YU40096-2	CAP HOUSING	
CN507	YU40096-3	CAP HOUSING	
CN508	YU40096-4	CAP HOUSING	
CN509	YU40096-4Y	CAP HOUSING	